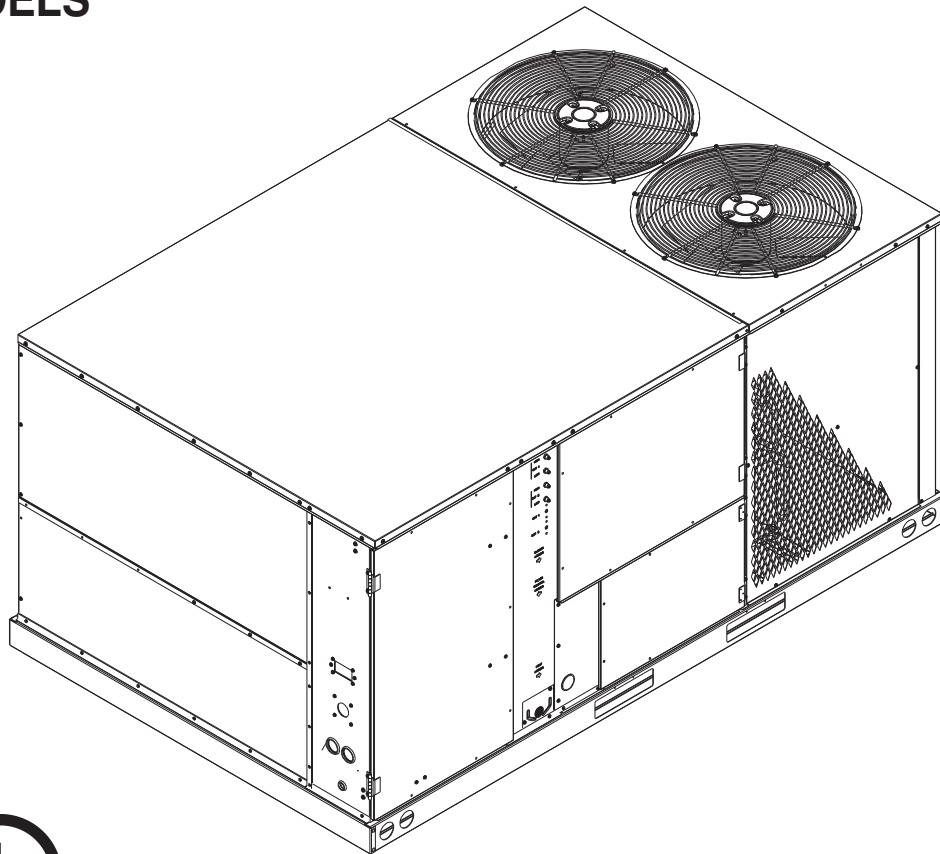


# HEAT CONTROLLER

## INSTALLATION INSTRUCTIONS

PACKAGE AIR CONDITIONERS FEATURING EARTH-FRIENDLY  
R410A REFRIGERANT 

PCG SERIES 6, 7.5, 8.5, 10 & 12.5 TON [21.1, 26.4, 29.9, 35.2 & 44 kW]  
60 HZ MODELS



Recognize this symbol as an indication of Important Safety Information!



**DO NOT DESTROY**  
PLEASE READ CAREFULLY AND KEEP IN A SAFE PLACE  
FOR FUTURE REFERENCE.

### WARNING

THESE INSTRUCTIONS ARE INTENDED AS AN AID TO QUALIFIED, LICENSED SERVICE PERSONNEL FOR PROPER INSTALLATION, ADJUSTMENT AND OPERATION OF THIS UNIT. READ THESE INSTRUCTIONS THOROUGHLY BEFORE ATTEMPTING INSTALLATION OR OPERATION. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN IMPROPER INSTALLATION, ADJUSTMENT, SERVICE OR MAINTENANCE POSSIBLY RESULTING IN FIRE, ELECTRICAL SHOCK, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



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## II. INTRODUCTION

### **▲ WARNING**

**THE MANUFACTURER'S WARRANTY DOES NOT COVER ANY DAMAGE OR DEFECT TO THE AIR CONDITIONER CAUSED BY THE ATTACHMENT OR USE OF ANY COMPONENTS, ACCESSORIES OR DEVICES (OTHER THAN THOSE AUTHORIZED BY THE MANUFACTURER) INTO, ONTO OR IN CONJUNCTION WITH THE AIR CONDITIONER. YOU SHOULD BE AWARE THAT THE USE OF UNAUTHORIZED COMPONENTS, ACCESSORIES OR DEVICES MAY ADVERSELY AFFECT THE OPERATION OF THE AIR CONDITIONER AND MAY ALSO ENDANGER LIFE AND PROPERTY. THE MANUFACTURER DISCLAIMS ANY RESPONSIBILITY FOR SUCH LOSS OR INJURY RESULTING FROM THE USE OF SUCH UNAUTHORIZED COMPONENTS, ACCESSORIES OR DEVICES.**

This booklet contains the installation and operating instructions for your air conditioner. There are a few precautions that should be taken to derive maximum satisfaction from it. Improper installation can result in unsatisfactory operation or dangerous conditions.

Read this booklet and any instructions packaged with separate equipment required to make up the system prior to installation. Give this booklet to the owner and explain its provisions. The owner should retain this booklet for future reference.

## III. CHECKING PRODUCT RECEIVED

Upon receiving the unit, inspect it for any damage from shipment. Claims for damage, either shipping or concealed, should be filed immediately with the shipping company. Check the unit model number, heating size, electrical characteristics, and accessories to determine if they are correct.

## IV. EQUIPMENT PROTECTION FROM THE ENVIRONMENT

The metal parts of this unit may be subject to rust or deterioration in adverse environmental conditions. This oxidation could shorten the equipment's useful life. Salt spray, fog or mist in seacoast areas, sulphur or chlorine from lawn watering systems, and various chemical contaminants from industries such as paper mills and petroleum refineries are especially corrosive.

**If the unit is to be installed in an area where contaminants are likely to be a problem, special attention should be given to the equipment location and exposure.**

1. Avoid having lawn sprinkler heads spray direction on the unit cabinet.
2. In coastal areas, locate the unit on the side of the building away from the waterfront.
3. Shielding provided by a fence or shrubs may give some protection.

**Regular maintenance will reduce the buildup of contaminants and help to protect the unit's finish.**

### **▲ WARNING**

**DISCONNECT ALL POWER TO THE UNIT BEFORE STARTING MAINTENANCE. FAILURE TO DO SO CAN RESULT IN SEVERE ELECTRICAL SHOCK OR DEATH.**

1. Frequent washing of the cabinet, fan blade and coil with fresh water will remove most of the salt or other contaminants that build up on the unit.
2. Regular cleaning and waxing of the cabinet with a good automobile polish will provide some protection.
3. A good liquid cleaner may be used several times a year to remove matter that will not wash off with water.

Several different types of protective coatings are offered in some areas. These coatings may provide some benefit, but the effectiveness of such coating materials cannot be verified by the equipment manufacturer.

**The best protection is frequent cleaning, maintenance and minimal exposure to contaminants.**

## V. SPECIFICATIONS

### A. GENERAL

The Packaged Air Conditioner is available without heat or with 10, 15, 20, 30, 40 or 50 kW electric heat. Cooling capacities of 6, 7½, 8½, 10 and 12½ nominal tons of cooling are available. Units are convertible from horizontal supply and return to bottom supply and return by relocation of supply and return air access panels. See cover installation detail.

The units are weatherized for mounting outside of the building.

The information on the rating plate is in compliance with the FTC and DOE rating for single phase units. The following information is for three phase units which **are not** covered under the DOE certification program.

1. The efficiency rating of this unit is a product thermal efficiency rating determined under continuous operating conditions independent of any installed system.

## B. MAJOR COMPONENTS

The unit includes a hermetically-sealed refrigerating system (consisting of a compressor, condenser coil, evaporator coil with thermal expansion valve), a circulation air blower, a condenser fan, and all necessary internal electrical wiring. The cooling system of these units is factory-evacuated, charged and performance tested. Refrigerant amount and type are indicated on rating plate.

## C. R-410A REFRIGERANT

All units are factory charged with R-410A refrigerant.

1. Specification of R-410A:

**Application: R-410A is not a drop-in replacement for R-22;** equipment designs must accommodate its higher pressures. It cannot be retrofitted into R-22 units.

**Pressure: The pressure of R-410A is approximately 60% (1.6 times) greater than R-22.** Recovery and recycle equipment, pumps, hoses and the like need to have design pressure ratings appropriate for R-410A. *Manifold sets need to range up to 800 psig high-side and 250 psig low-side with a 550 psig low-side retard. Hoses need to have a service pressure rating of 800 psig. Recovery cylinders need to have a 400 psig service pressure rating.* DOT 4BA400 or DOT BW400.

**Combustibility:** At pressures above 1 atmosphere, mixture of R-410A and air can become combustible. **R-410A and air should never be mixed in tanks or supply lines, or be allowed to accumulate in storage tanks. Leak checking should never be done with a mixture of R-410A and air.** Leak checking can be performed safely with nitrogen or a mixture of R-410A and nitrogen.

2. Quick Reference Guide For R-410A

- R-410A refrigerant operates at approximately 60% higher pressure (1.6 times) than R-22. Ensure that servicing equipment is designed to operate with R-410A.

- R-410A refrigerant cylinders are pink.
- R-410A, as with other HFC's is only compatible with POE oils.
- Vacuum pumps will not remove moisture from POE oil.
- R-410A systems are to be charged with liquid refrigerants. Prior to March 1999, R-410A refrigerant cylinders had a dip tube. These cylinders should be kept upright for equipment charging. Post March 1999 cylinders do not have a dip tube and should be inverted to ensure liquid charging of the equipment.
- Do not install a suction line filter drier in the liquid line.
- A liquid line filter drier is standard on every unit.
- Desiccant (drying agent) must be compatible for POE oils and R-410A.

3. Evaporator Coil / TXV

The thermostatic expansion valve is specifically designed to operate with R-410A. **DO NOT use an R-22 TXV. The existing evaporator must be replaced with the factory specified TXV evaporator specifically designed for R-410A.**

4. Tools Required For Installing & Servicing R-410A Models

Manifold Sets:

- Up to 800 PSIG High side
- Up to 250 PSIG Low Side
- 550 PSIG Low Side Retard

Manifold Hoses:

- Service Pressure Rating of 800 PSIG

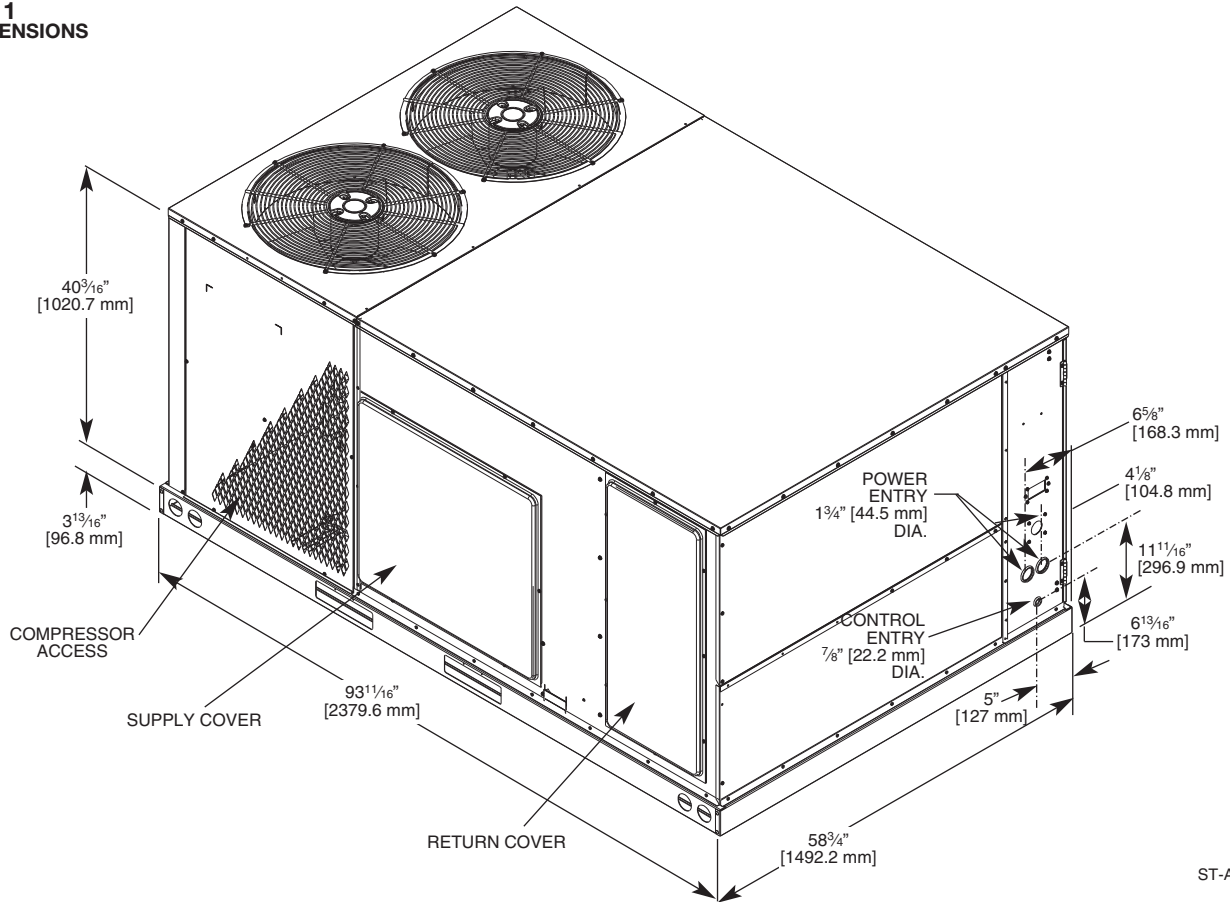
Recovery Cylinders:

- 400 PSIG Pressure Rating
- Dept. of Transportation 4BA400 or BW400

### **▲ CAUTION**

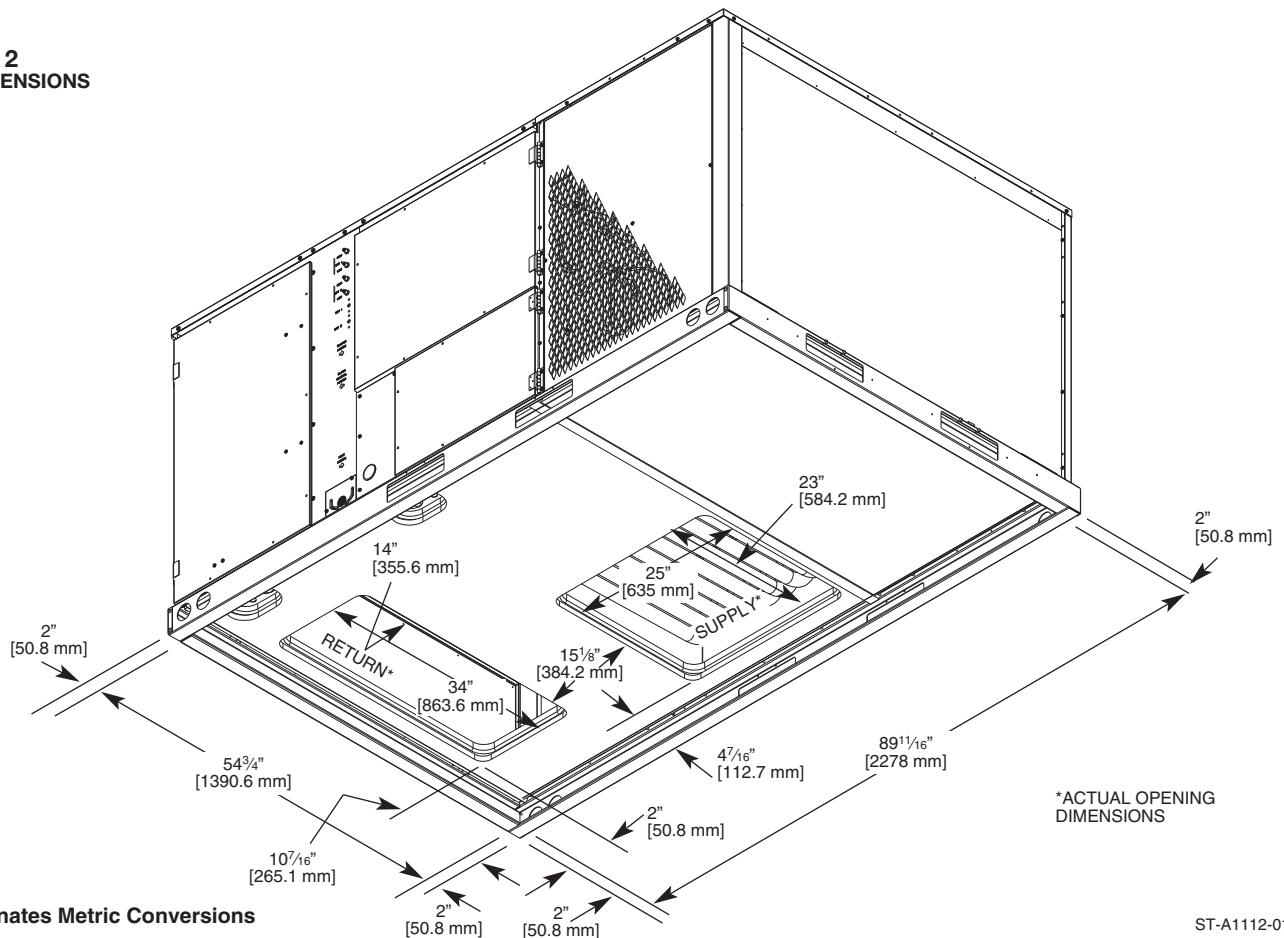
R-410A systems operate at higher pressures than R-22 systems. Do not use R-22 service equipment or components on R-410A equipment.

**FIGURE 1  
UNIT DIMENSIONS**



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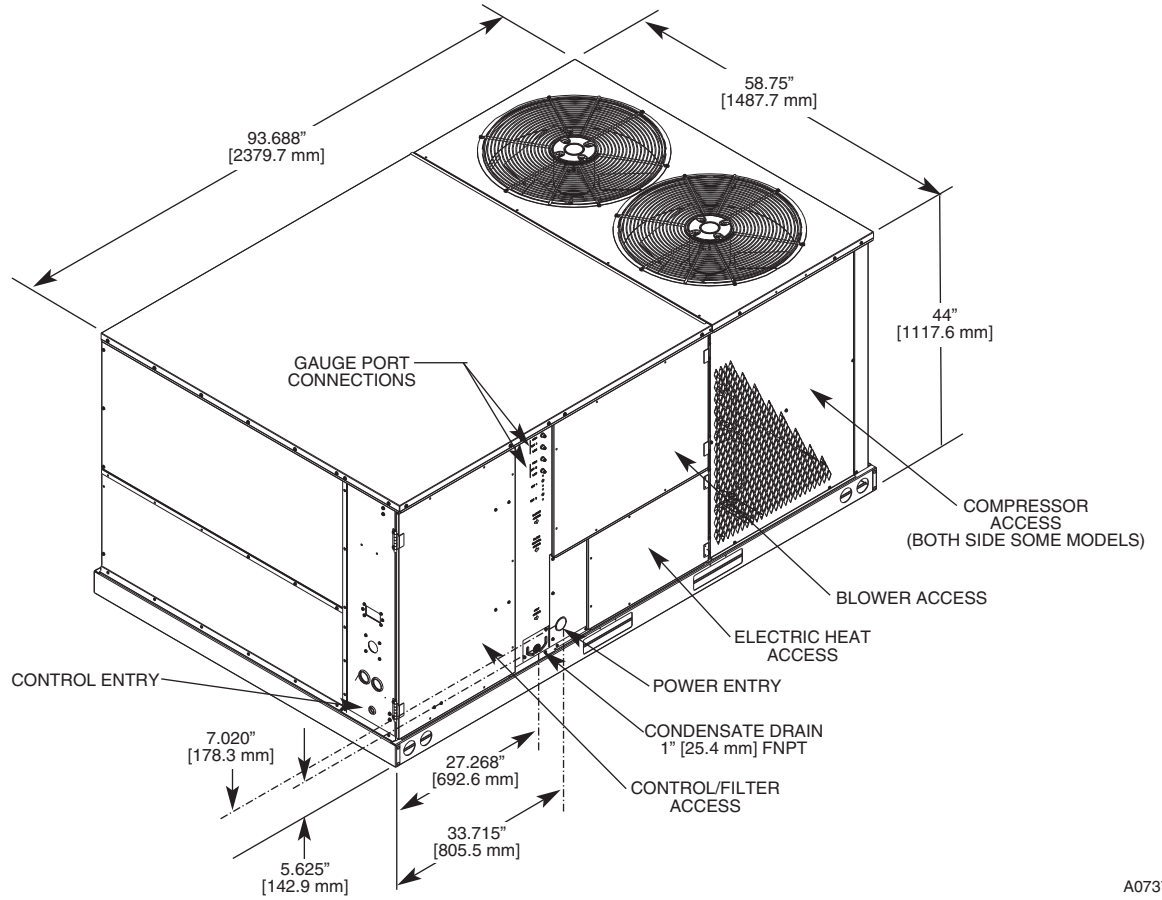
**FIGURE 2  
UNIT DIMENSIONS**



[ ] Designates Metric Conversions

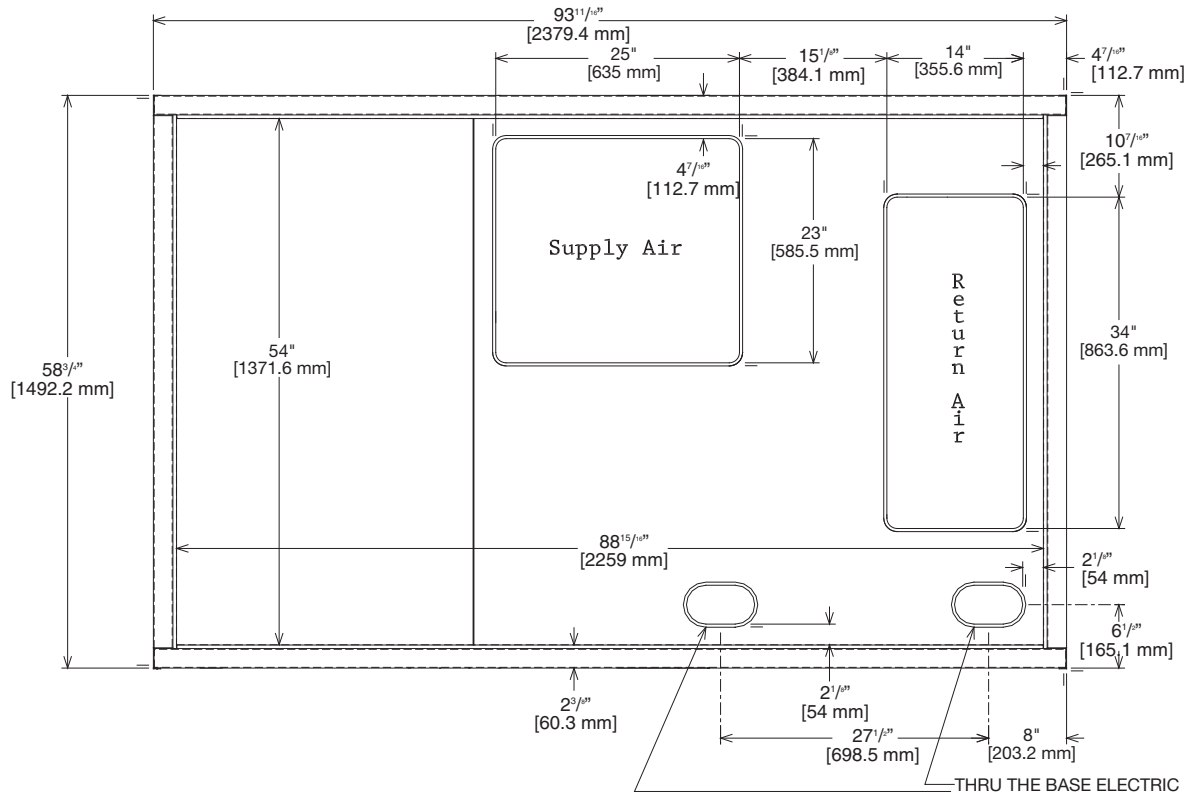
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**FIGURE 3  
UNIT DIMENSIONS**



**FIGURE 4  
BOTTOM VIEW**

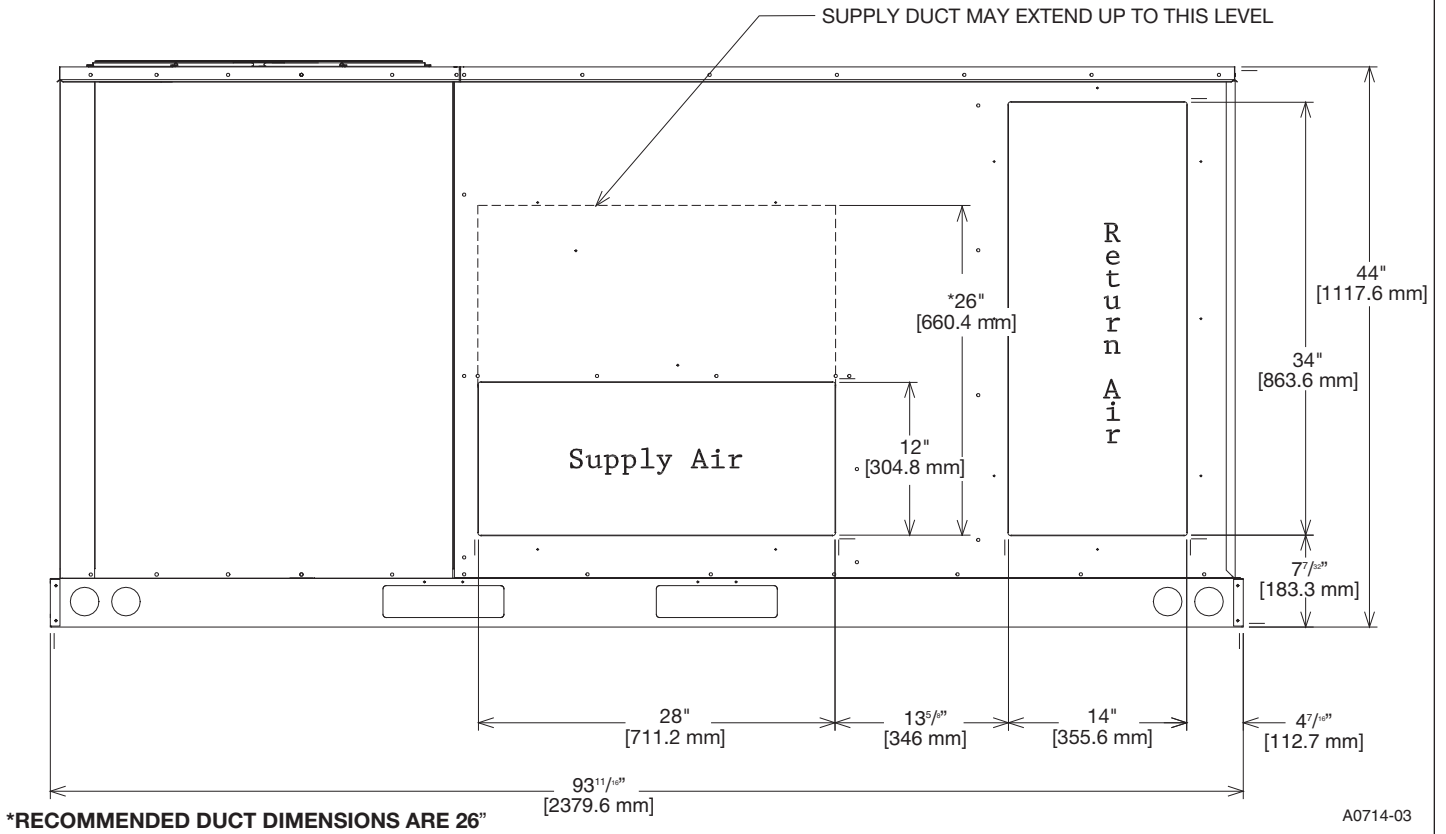
**SUPPLY RETURN DIMENSIONS FOR DOWNFLOW APPLICATIONS**



A0712-02

**FIGURE 5**  
**REAR VIEW**

**SUPPLY AND RETURN DIMENSIONS FOR HORIZONTAL APPLICATION**



# GENERAL DATA - PCG

## NOM. SIZES 6-12½ TONS [21.1-43.9 kW]

Model PCG- Series	072A-3L	072A-4L	085A-3L	085A-4L
<b>Cooling Performance<sup>1</sup></b>				<b>CONTINUED</b> →
Gross Cooling Capacity Btu [kW]	76,000 [22.27]	76,000 [22.27]	88,000 [25.78]	88,000 [25.78]
EER/SEER <sup>2</sup>	11.5/NA	11.5/NA	11.2/NA	11.2/NA
Nominal CFM/ARI Rated CFM [L/s]	2400/2375 [1133/1121]	2400/2375 [1133/1121]	2800/3000 [1321/1416]	2800/3000 [1321/1416]
ARI Net Cooling Capacity Btu [kW]	73,000 [21.39]	73,000 [21.39]	85,000 [24.9]	85,000 [24.9]
Net Sensible Capacity Btu [kW]	53,900 [15.79]	53,900 [15.79]	66,100 [19.37]	66,100 [19.37]
Net Latent Capacity Btu [kW]	19,100 [5.6]	19,100 [5.6]	18,900 [5.54]	18,900 [5.54]
Integrated Part Load Value <sup>3</sup>	N/A	N/A	N/A	N/A
Net System Power kW	6.31	6.31	7.53	7.53
<b>Compressor</b>				
No./Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll
<b>Outdoor Sound Rating (dB)<sup>5</sup></b>	88	88	88	88
<b>Outdoor Coil—Fin Type</b>	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	13.5 [1.25]	13.5 [1.25]	27 [2.51]	27 [2.51]
Rows / FPI [FPcm]	1 / 22 [9]	1 / 22 [9]	1 / 22 [9]	1 / 22 [9]
<b>Indoor Coil—Fin Type</b>	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	13.5 [1.25]	13.5 [1.25]	13.5 [1.25]	13.5 [1.25]
Rows / FPI [FPcm]	2 / 18 [7]	2 / 18 [7]	2 / 18 [7]	2 / 18 [7]
Refrigerant Control	Orifices	Orifices	Orifices	Orifices
Drain Connection No./Size in. [mm]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]
<b>Outdoor Fan—Type</b>	Propeller	Propeller	Propeller	Propeller
No. Used/Diameter in. [mm]	2/24 [609.6]	2/24 [609.6]	2/24 [609.6]	2/24 [609.6]
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1	Direct/1
CFM [L/s]	8000 [3775]	8000 [3775]	8000 [3775]	8000 [3775]
No. Motors/HP	2 at 1/3 HP	2 at 1/3 HP	2 at 1/3 HP	2 at 1/3 HP
Motor RPM	1075	1075	1075	1075
<b>Indoor Fan—Type</b>	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/11x12 [279x305]	1/11x12 [279x305]	1/15x15 [381x381]	1/15x15 [381x381]
Drive Type/No. Speeds	Belt/Variable	Belt/Variable	Belt/Variable	Belt/Variable
No. Motors	1	1	1	1
Motor HP	1 1/2	1 1/2	2	2
Motor RPM	1725	1725	1725	1725
Motor Frame Size	56	56	56	56
<b>Filter—Type</b>	Disposable	Disposable	Disposable	Disposable
Furnished	Yes	Yes	Yes	Yes
(No.) Size Recommended in. [mm x mm x mm]	(6)2x18x18 [51x457x457]	(6)2x18x18 [51x457x457]	(6)2x18x18 [51x457x457]	(6)2x18x18 [51x457x457]
<b>Refrigerant Charge Oz. [g]</b>	120 [3402]	120 [3402]	190.9 [5412]	190.9 [5412]
<b>Weights</b>				
Net Weights lbs. [kg]	901 [409]	901 [409]	965 [438]	965 [438]
Ship Weights lbs. [kg]	938 [425]	938 [425]	1002 [455]	1002 [455]



# GENERAL DATA - PCG

## NOM. SIZES 6-12½ TONS [21.1-43.9 kW]

Model PCG- Series	090A-3L	090A-4L	102A-3L	102A-4L
<b>Cooling Performance<sup>1</sup></b>				<b>CONTINUED</b> →
Gross Cooling Capacity Btu [kW]	93,000 [27.25]	93,000 [27.25]	101,000 [29.59]	101,000 [29.59]
EER/SEER <sup>2</sup>	11.2/NA	11.2/NA	11.2/NA	11.2/NA
Nominal CFM/ARI Rated CFM [L/s]	3000/2775 [1416/1310]	3000/2775 [1416/1310]	3200/3200 [1510/1510]	3200/3200 [1510/1510]
ARI Net Cooling Capacity Btu [kW]	90,000 [26.37]	90,000 [26.37]	97,000 [28.42]	97,000 [28.42]
Net Sensible Capacity Btu [kW]	63,100 [18.49]	63,100 [18.49]	74,000 [21.68]	74,000 [21.68]
Net Latent Capacity Btu [kW]	26,900 [7.88]	26,900 [7.88]	23,000 [6.74]	23,000 [6.74]
Integrated Part Load Value <sup>3</sup>	13	13	12.9	12.9
Net System Power kW	7.99	7.99	8.59	8.59
<b>Compressor</b>				
No./Type	2/Scroll	2/Scroll	2/Scroll	2/Scroll
<b>Outdoor Sound Rating (dB)<sup>5</sup></b>	88	88	88	88
<b>Outdoor Coil—Fin Type</b>	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	27 [2.51]	2.7 [0.25]	27 [2.51]	27 [2.51]
Rows / FPI [FPcm]	1 / 22 [9]	1 / 22 [9]	2 / 18 [7]	2 / 18 [7]
<b>Indoor Coil—Fin Type</b>	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	13.5 [1.25]	13.5 [1.25]	13.5 [1.25]	13.5 [1.25]
Rows / FPI [FPcm]	2 / 18 [7]	2 / 18 [7]	2 / 18 [7]	2 / 18 [7]
Refrigerant Control	TX Valves	TX Valves	TX Valves	TX Valves
Drain Connection No./Size in. [mm]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]
<b>Outdoor Fan—Type</b>	Propeller	Propeller	Propeller	Propeller
No. Used/Diameter in. [mm]	2/24 [609.6]	2/24 [609.6]	2/24 [609.6]	2/24 [609.6]
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1	Direct/1
CFM [L/s]	8000 [3775]	8000 [3775]	8000 [3775]	8000 [3775]
No. Motors/HP	2 at 1/3 HP	2 at 1/3 HP	2 at 1/3 HP	2 at 1/3 HP
Motor RPM	1075	1075	1075	1075
<b>Indoor Fan—Type</b>	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/15x15 [381x381]	1/15x15 [381x381]	1/15x15 [381x381]	1/15x15 [381x381]
Drive Type/No. Speeds	Belt/Variable	Belt/Variable	Belt/Variable	Belt/Variable
No. Motors	1	1	1	1
Motor HP	2	2	3	3
Motor RPM	1725	1725	1725	1725
Motor Frame Size	56	56	56	56
<b>Filter—Type</b>	Disposable	Disposable	Disposable	Disposable
Furnished	Yes	Yes	Yes	Yes
(No.) Size Recommended in. [mm x mm x mm]	(6)2x18x18 [51x457x457]	(6)2x18x18 [51x457x457]	(6)2x18x18 [51x457x457]	(6)2x18x18 [51x457x457]
<b>Refrigerant Charge Oz. [g]</b>	107.5/110.7 [3048/3138]	107.5/110.7 [3048/3138]	154.4/166.6 [4377/4723]	154.4/166.6 [4377/4723]
<b>Weights</b>				
Net Weights lbs. [kg]	1017 [461]	1017 [461]	1067 [484]	1067 [484]
Ship Weights lbs. [kg]	1054 [478]	1054 [478]	1104 [501]	1104 [501]



# GENERAL DATA - PCG

## NOM. SIZES 6-12½ TONS [21.1-43.9 kW]

Model PCG- Series	120A-4L	150A-3L	150A-4L
<b>Cooling Performance<sup>1</sup></b>			
Gross Cooling Capacity Btu [kW]	123,000 [36.04]	156,000 [45.71]	156,000 [45.71]
EER/SEER <sup>2</sup>	11.2/NA	11/NA	11/NA
Nominal CFM/ARI Rated CFM [L/s]	4000/3750 [1888/1770]	5000/4400 [2360/2076]	5000/4400 [2360/2076]
ARI Net Cooling Capacity Btu [kW]	118,000 [34.57]	148,000 [43.36]	148,000 [43.36]
Net Sensible Capacity Btu [kW]	88,800 [26.02]	107,600 [31.53]	107,600 [31.53]
Net Latent Capacity Btu [kW]	29,200 [8.56]	40,400 [11.84]	40,400 [11.84]
Integrated Part Load Value <sup>3</sup>	12.9	11.9	11.9
Net System Power kW	10.49	13.39	13.39
<b>Compressor</b>			
No./Type	2/Scroll	2/Scroll	2/Scroll
<b>Outdoor Sound Rating (dB)<sup>5</sup></b>			
	88	88	88
<b>Outdoor Coil—Fin Type</b>			
Tube Type	Louvered	Louvered	Louvered
Tube Size in. [mm] OD	Rifled	MicroChannel	MicroChannel
Face Area sq. ft. [sq. m]	0.375 [9.5]	1 [25.4]	1 [25.4]
Rows / FPI [FPcm]	27 [2.51]	27 [2.51]	27 [2.51]
	2 / 22 [9]	2 / 20 [8]	2 / 20 [8]
<b>Indoor Coil—Fin Type</b>			
Tube Type	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	13.5 [1.25]	13.5 [1.25]	13.5 [1.25]
Rows / FPI [FPcm]	3 / 18 [7]	4 / 15 [6]	4 / 15 [6]
Refrigerant Control	TX Valves	TX Valves	TX Valves
Drain Connection No./Size in. [mm]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]
<b>Outdoor Fan—Type</b>			
No. Used/Diameter in. [mm]	Propeller	Propeller	Propeller
Drive Type/No. Speeds	2/24 [609.6]	2/24 [609.6]	2/24 [609.6]
CFM [L/s]	Direct/1	Direct/1	Direct/1
No. Motors/HP	8000 [3775]	8000 [3775]	8000 [3775]
Motor RPM	2 at 1/3 HP	2 at 1/2 HP	2 at 1/2 HP
	1075	1075	1075
<b>Indoor Fan—Type</b>			
No. Used/Diameter in. [mm]	FC Centrifugal	FC Centrifugal	FC Centrifugal
Drive Type/No. Speeds	1/15x15 [381x381]	1/15x15 [381x381]	1/15x15 [381x381]
No. Motors	Belt/Variable	Belt/Variable	Belt/Variable
Motor HP	1	1	1
Motor RPM	3	5	5
Motor Frame Size	1725	1725	1725
	56	184	184
<b>Filter—Type</b>			
Furnished	Disposable	Disposable	Disposable
(No.) Size Recommended in. [mm x mm x mm]	Yes	Yes	Yes
	(6)2x18x18 [51x457x457]	(6)2x18x18 [51x457x457]	(6)2x18x18 [51x457x457]
<b>Refrigerant Charge Oz. [g]</b>			
	172.8/180.8 [4899/5126]	159.2/156 [4513/4423]	159.2/156 [4513/4423]
<b>Weights</b>			
Net Weights lbs. [kg]	1120 [508]	1238 [562]	1238 [562]
Ship Weights lbs. [kg]	1157 [525]	1275 [578]	1275 [578]

# ELECTRICAL DATA - PCG

ELECTRICAL DATA - PCG SERIES										
		072A-3L	072A-4L	085A-3L	085A-4L	090A-3L	090A-4L	102A-3L	102A-4L	120A-3L
Unit Information	Unit Operating Voltage Range	187-253	414-506	187-253	414-506	187-253	414-506	187-253	414-506	187-253
	Volts	208/230	460	208/230	460	208/230	460	208/230	460	208/230
	Minimum Circuit Ampacity	37/37	18	42/42	21	43/43	21	54/54	26	54/54
	Minimum Overcurrent Protection Device Size	40/40	20	45/45	25	45/45	25	55/55	30	55/55
	Maximum Overcurrent Protection Device Size	50/50	25	60/60	30	50/50	25	60/60	30	60/60
Compressor Motor	No.	1	1	1	1	2	2	2	2	2
	Volts	200/240	480	200/240	480	200/240	480	200/230	460	200/240
	Phase	3	3	3	3	3	3	3	3	3
	RPM	3450	3450	3450	3450	3450	3450	3450	3450	3450
	HP, Compressor 1	5	5	6	6	3 1/4	3 1/4	3 3/4	3 3/4	4 1/4
	Amps (RLA), Comp. 1	22.9/22.9	9.6	23.2/23.2	11.2	13.1/13.1	6.1	16/16	7.1	16/16
	Amps (LRA), Comp. 1	155/155	75	164/164	75	83.1/83.1	41	91/91	46	110/110
	HP, Compressor 2	—	—	—	—	3 1/4	3 1/4	3 3/4	3 3/4	4 1/4
	Amps (RLA), Comp. 2	—	—	—	—	13.1/13.1	6.1	16/16	7.1	16/16
	Amps (LRA), Comp. 2	—	—	—	—	83.1/83.1	41	91/91	46	110/110
Condenser Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	208/230	460	208/230	460	208/230	460	208/230	460	208/230
	Phase	1	1	1	1	1	1	1	1	1
	HP	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3
	Amps (FLA, each)	2.4/2.4	0.7	1.2/1.2	0.7	1.2/1.2	0.7	1.2/1.2	0.7	1.2/1.2
	Amps (LRA, each)	4.7/4.7	2.4	4.7/4.7	2.4	4.7/4.7	2.4	4.7/4.7	2.4	4.7/4.7
Evaporator Fan	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	460	208/230	460	208/230	460	208/230	460	208/230
	Phase	3	3	3	3	3	3	3	3	3
	HP	1 1/2	1 1/2	2	2	2	2	3	3	3
	Amps (FLA, each)	5.6/5.62.8	1.9	8/8	4	8/8	4	13/13	7	13/13
	Amps (LRA, each)	28.8/28.8	14.4	56/56	28	56/56	28	74.5/74.5	38.1	74.5/74.5

# ELECTRICAL DATA - PCG

ELECTRICAL DATA - PCG SERIES				
		120A-4L	150A-3L	150A-4L
Unit Information	Unit Operating Voltage Range	414-506	187-253	414-506
	Volts	460	208/230	460
	Minimum Circuit Ampacity	28	71/71	36
	Minimum Overcurrent Protection Device Size	30	75/75	40
	Maximum Overcurrent Protection Device Size	35	90/90	45
Compressor Motor	No.	2	2	2
	Volts	480	208/230	460
	Phase	3	3	3
	RPM	3450	3450	3450
	HP, Compressor 1	4 1/4	5 3/4	5 3/4
	Amps (RLA), Comp. 1	9.8	22.4/22.4	10.6
	Amps (LRA), Comp. 1	52	149/149	75
	HP, Compressor 2	4 1/4	5 1/4	5 1/4
	Amps (RLA), Comp. 2	9.8	19/19	9.7
	Amps (LRA), Comp. 2	52	123/123	62
Condenser Motor	No.	2	2	2
	Volts	460	208-230	460
	Phase	1	1	1
	HP	1/3	1/2	1/2
	Amps (FLA, each)	0.7	1.15/1.15	0.75
	Amps (LRA, each)	2.4	5.6/5.6	3.1
Evaporator Fan	No.	1	1	1
	Volts	460	208/230	460
	Phase	3	3	3
	HP	3	5	5
	Amps (FLA, each)	7	18.8/18.8	10
	Amps (LRA, each)	38.1	82.6/82.6	41.3

## VI. INSTALLATION

### A. GENERAL

#### 1. PRE-INSTALLATION CHECK-POINTS

Before attempting any installation, the following points should be carefully considered:

- Structural strength of supporting members. (rooftop installation)
- Clearances and provision for servicing.
- Power supply and wiring.
- Air duct connections.
- Drain facilities and connections.
- Location for minimum noise.

#### 2. LOCATION

These units are designed for outdoor installations. They can be mounted on a slab or rooftop. They are not to be installed within any part of a structure such as an attic, crawl space, closet, or any other place where condenser air flow is restricted or other than outdoor ambient conditions prevail. Since the application of the units is of the outdoor type, it is important to consult your local code authorities at the time the first installation is made.

### B. OUTSIDE SLAB INSTALLATION (Typical outdoor slab installations are shown in Figures 6 and 7.)

- Select a location where external water drainage cannot collect around the unit.
- Provide a level concrete slab extending 3" [76.2 mm] beyond all four sides of the unit. The slab should be sufficient above grade to prevent ground water from entering the unit. **IMPORTANT:** To prevent transmission of noise or vibration, slab should not be connected to building structure.
- The location of the unit should be such as to provide proper access for inspection and servicing.
- Locate unit where operating sounds will not disturb owner or neighbors.
- Locate unit so roof runoff water does not pour directly on the unit. Provide gutter or other shielding at roof level. Do not locate unit in an area where excessive snow drifting may occur or accumulate.

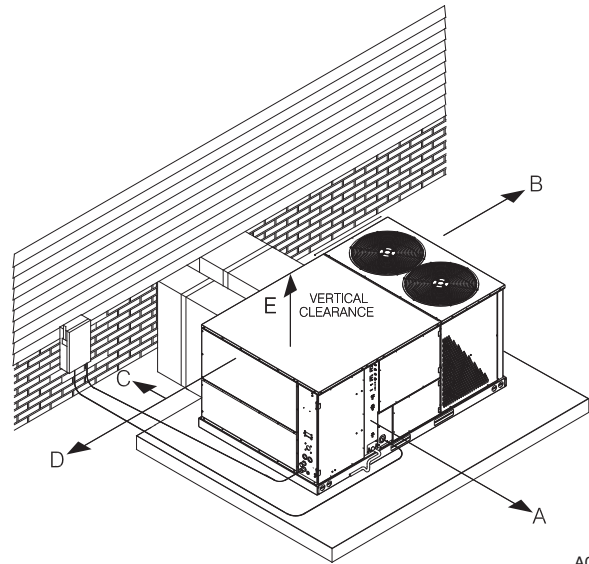
### C. CLEARANCES

The following minimum clearances must be observed for proper unit performance and serviceability.

- Provide 48" [1219.2 mm] minimum clearance at the front of the unit. Provide 18" [457.2 mm] minimum clearance at all other sides of the unit.
- Provide 60" [1524 mm] minimum clearance between top of unit and maximum 3 foot [.91 m] overhang.
- Unit is design certified for application on combustible flooring with 0" [0 mm] minimum clearance.
- See Figure 6 for illustration of minimum installation-service clearances.

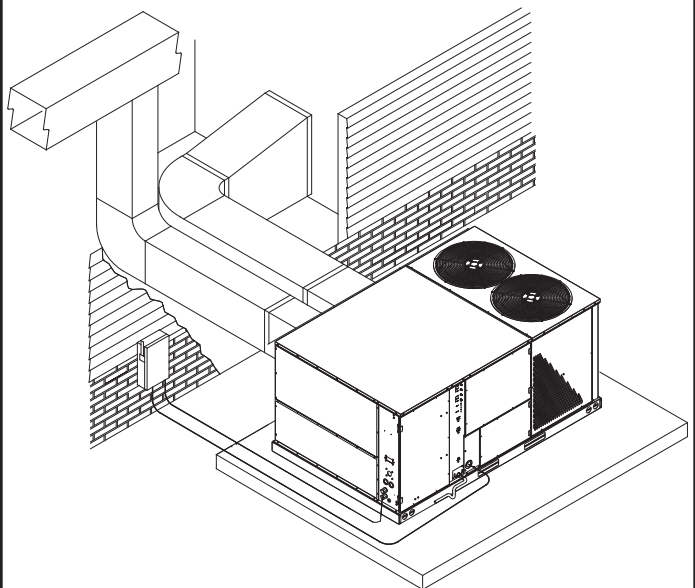
**FIGURE 6**  
OUTSIDE SLAB INSTALLATION, BASEMENT OR CRAWL SPACE DISTRIBUTION SYSTEM

Recommended Clearance	Location
48" [1219.2 mm]	A - Front
18" [457.2 mm]	B - Condenser Coil
18" [457.2 mm]	C - Duct Side
18"* [457.2 mm]	D - Evaporator End
60" [1524 mm]	E - Above
*Without Economizer. 48" [1219.2 mm] With Economizer	



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**FIGURE 7**  
OUTSIDE SLAB INSTALLATION, CLOSET DISTRIBUTION SYSTEM. SLAB FLOOR CONSTRUCTION



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## D. ROOFTOP INSTALLATION

1. Before locating the unit on the roof, make sure that the strength of the roof and beams is adequate at that point to support the weight involved. **This is very important and user's responsibility.**
2. For rigging and roofcurb details, see Figures 8 and 9. Use field-furnished spreaders.
3. For roofcurb assembly, see Roofcurb Installation Instructions.
4. If the roofcurb is not used, provisions for disposing of condensate water runoff must be provided.
5. The unit should be placed on a solid and level roofcurb or platform of adequate strength. See Figure 10.
6. The location of the unit on the roof should be such as to provide proper access for inspection and servicing.

**IMPORTANT:** If unit will not be put into service immediately, cover supply and return openings to prevent excessive condensation.

**FIGURE 8  
RIGGING FOR LIFTING**

CORNER WEIGHTS BY PERCENTAGE			
A	B	C	D
33%	27%	17%	23%

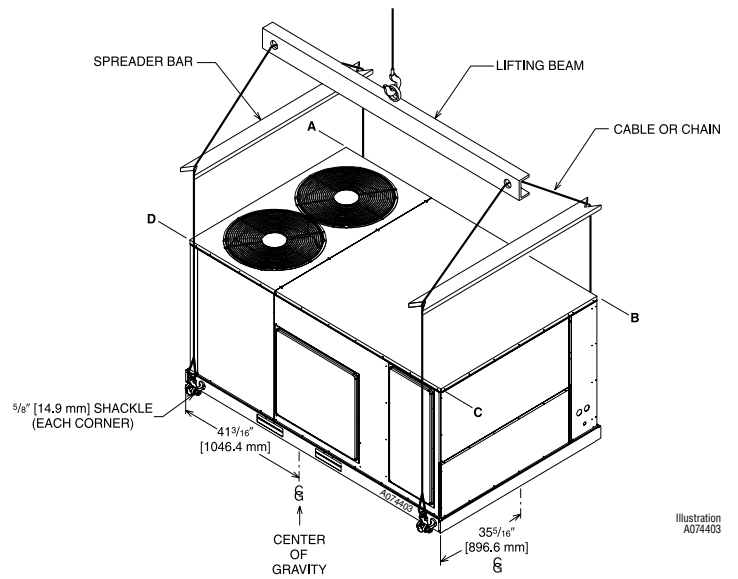
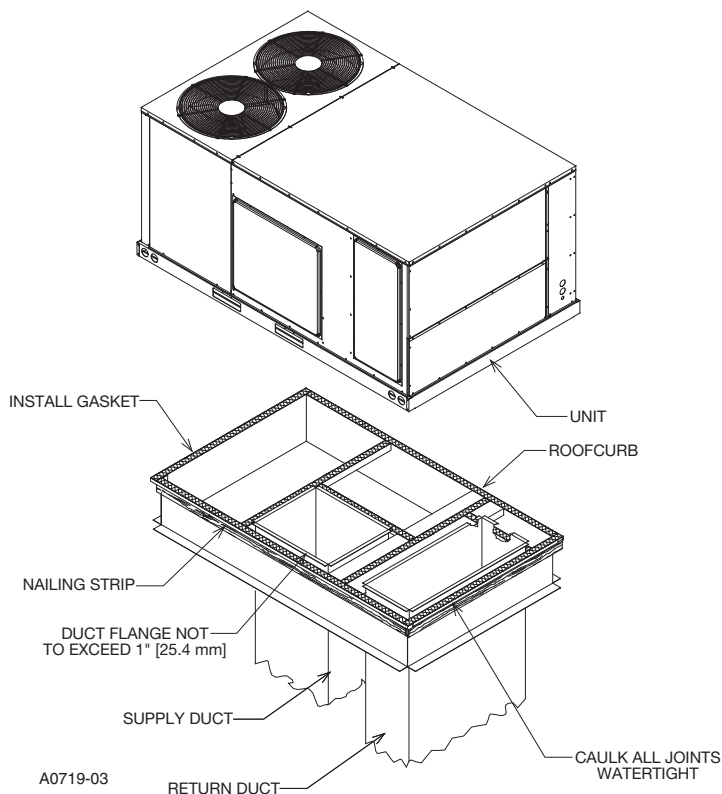


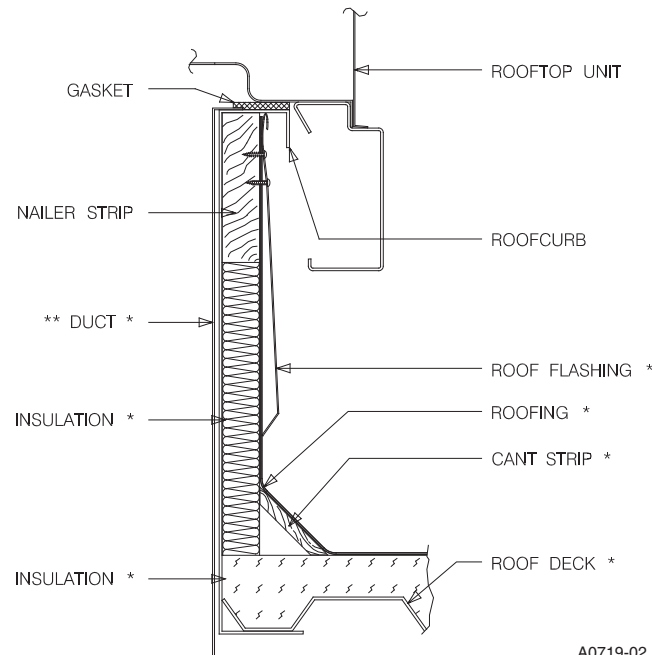
Illustration  
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**FIGURE 9  
ROOFCURB INSTALLATION**



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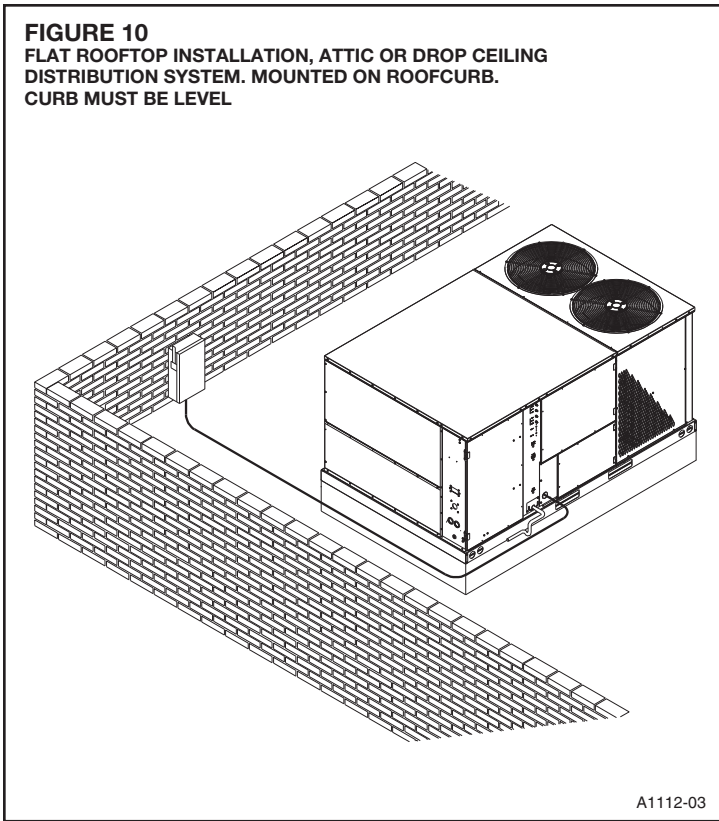


A0719-02

\* BY CONTRACTOR

\*\* FOR INSTALLATION OF DUCT AS SHOWN, USE RECOMMENDED DUCT SIZES FROM ROOFCURB INSTALLATION INSTRUCTIONS. FOR DUCT FLANGE ATTACHMENT TO UNIT, SEE UNIT INSTALLATION INSTRUCTIONS FOR RECOMMENDED DUCT SIZES.

**FIGURE 10**  
**FLAT ROOFTOP INSTALLATION, ATTIC OR DROP CEILING**  
**DISTRIBUTION SYSTEM. MOUNTED ON ROOFCURB.**  
**CURB MUST BE LEVEL**



## VII. DUCTWORK

Ductwork should be fabricated by the installing contractor in accordance with local codes and NFPA90A. Industry manuals may be used as a guide when sizing and designing the duct system - contact Air Conditioning Contractors of America, 1513 16th St. N.W., Washington, D.C. 20036.

### **▲ WARNING**

**DO NOT, UNDER ANY CIRCUMSTANCES, CONNECT RETURN DUCTWORK TO ANY OTHER HEAT PRODUCING DEVICE SUCH AS A FIREPLACE INSERT, STOVE, ETC. UNAUTHORIZED USE OF SUCH DEVICES MAY RESULT IN FIRE, CARBON MONOXIDE POISONING, EXPLOSION, PROPERTY DAMAGE, SEVERE PERSONAL INJURY OR DEATH.**

The unit should be placed as close to the space to be air conditioned as possible allowing clearance dimensions as indicated. Ducts should be run as directly as possible to supply and return outlets. Use of non-flammable waterproof flexible connectors on both supply and return connections at the unit to reduce noise transmission is recommended.

It is preferable to install the unit on the roof of the structure if the registers or diffusers are located on the wall or in the ceiling. A slab installation could be considered when the registers are low on a wall or in the floor.

On ductwork exposed to outside air conditions of temperature and humidity, use a minimum of 2" [50.8 mm] of insulation and a vapor barrier. Distribution system in attic, furred space or crawl space should be insulated with at least 2" [50.8 mm] of insulation with vapor barrier. One-half to 1" [25.4 mm] thickness of insulation is usually sufficient for ductwork inside the air conditioned space.

Balancing dampers should be provided for each branch duct in the supply system. Ductwork should be properly supported from the structure.

When installing ductwork, consider the following items:

1. Noncombustible flexible connectors should be used between ductwork and unit to reduce noise and vibration transmission into the ductwork.
2. When auxiliary heaters are installed, use noncombustible flexible connectors and clearance to combustible material of 0" [0 mm] for the first 3 feet [.91 m] of discharge duct. Clearance to unit top and side is 0" [0 mm].

## VIII. FILTERS

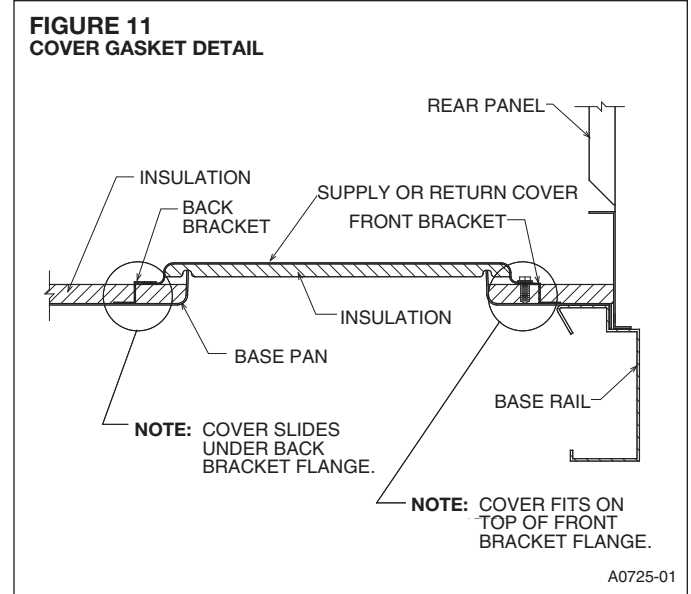
This unit is provided with 6 - 2" x 18" x 18" [51mm x 457 mm x 457 mm] disposable filters. When replacing filters, ensure they are inserted fully to the back to prevent bypass.

## VIX. CONVERSION PROCEDURE

### DOWNFLOW TO HORIZONTAL

1. Remove the screws and covers from the outside of the supply and return sections.
2. Install the covers over the bottom supply and return openings, painted side up inserting the leading flange under the bracket provided. Place the back flange to the top of the front bracket provided. See Figure 11.
3. Secure the return and supply cover to the front bracket with one (1) screw.

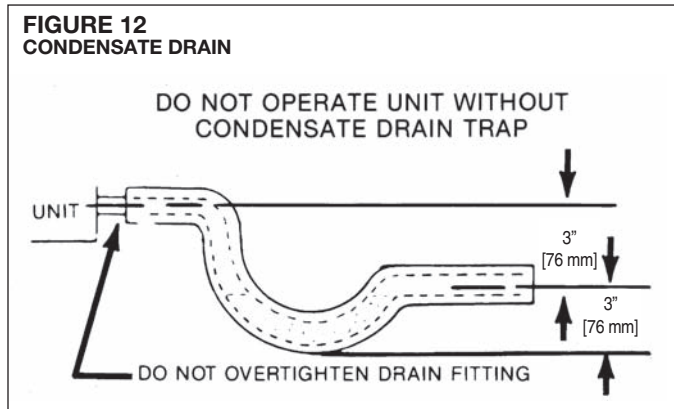
**FIGURE 11**  
**COVER GASKET DETAIL**





## X. CONDENSATE DRAIN

The condensate drain connection of the evaporator is 1" [25.4 mm] nominal female pipe thread. **IMPORTANT:** Install a condensate trap to ensure proper condensate drainage. See Figure 12.



## XI. ELECTRICAL WIRING

Field wiring must comply with the National Electrical Code (CEC in Canada) and local ordinances that may apply.

### A. POWER WIRING

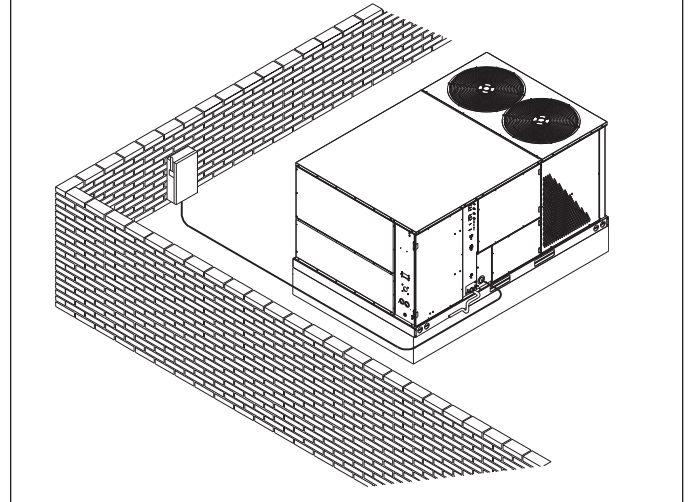
1. This unit incorporates single-point electrical connections for the unit and electric heat accessory.
2. It is important that proper electrical power is available to the unit. Voltage should not vary more than 10% from the values marked on the unit rating plate. Phase voltages must be balanced within 3%.
3. Install a branch circuit disconnect within sight of the unit. Use the unit rating plate or RLNL-B Electrical Data to determine the required size.
4. The branch circuit wire must be sized in accordance with the National Electrical Code (C.E.C. in Canada) and local ordinances that may apply using the minimum circuit ampacity found on the unit rating plate.
5. Field-installed power wiring must be run through grounded rain-tight conduit attached to the unit power entry panel and connected as follows:

**UNITS WITHOUT ELECTRIC HEAT** - Connect power wiring to the power terminal block located on the left side of the electric heat compartment. Connect the ground wire to the adjacent ground lug.

**UNITS WITH FACTORY INSTALLED ELECTRIC HEAT** - Connect power wiring to the power terminal block located on the electric heater kit. Connect the ground wire to the adjacent ground lug. **DO NOT** connect aluminum wiring directly to the electric heater terminal block. Wiring to the unit contactors is factory-connected.

6. For field installation of an electric heater kit, follow the instructions below. Refer to the information supplied with the kit.
  - a. Removing screws as required, open heater access door and detach adjacent power entry panel.
  - b. Remove wires to unit contactor (1L1, 1L2, 1L3) from unit terminal block on the left side of the electric heat compartment. Remove and discard the terminal block and the adjacent ground lug.
  - c. Remove the heater kit block-off panel and install the heater kit in its place using 9 of the 12 screws previously removed.
  - d. Connect the unit contactor wires (1L1, 1L2, 1L3) to the compressor fuse block on the heater kit.

**FIGURE 13**  
**BRANCH CIRCUIT DISCONNECT LOCATION**



- e. Re-install the power entry panel & run conduit and the proper size field wiring through the opening in the panel.
- f. Connect field wiring to the power terminal block located on the electric heater kit. Connect ground wire to the adjacent ground lug.
- g. Connect heater kit control plug to the receptacle on the control wiring harness.
- h. Close heater access door and secure with screws previously removed.

### B. CONTROL WIRING (Class II)

1. Low voltage wiring should not be run in conduit with power wiring.
2. Control wiring is routed through the 7/8" [22 mm] hole in the unit side panel. See Figure 14. Use a minimum #18 AWG thermostat wire. For wire lengths exceeding 50' [15.24 m] use #16 AWG thermostat wire. Connect the control wiring to the low voltage terminal block located on the unit integrated control. Route wires under the control voltage shield. See Figure 14.
3. It is necessary that only approved thermostats be used. Please contact your distributor for part number information. See thermostat specification catalog for recommended thermostat.
4. Figure 15 shows representative low voltage connection diagrams. Read your thermostat installation instructions for any special requirements for your specific thermostat.

### C. INTERNAL WIRING

1. A diagram of the internal wiring of this unit is located on the inside of the control access panel and in this manual. If any of the original wiring must be replaced, the wire gauge and insulation must be the same as original wiring. Transformer is factory-wired for 220 volts on 200/220 volt models and must be changed for 200-volt applications. See unit wiring diagram for 200-volt wiring.

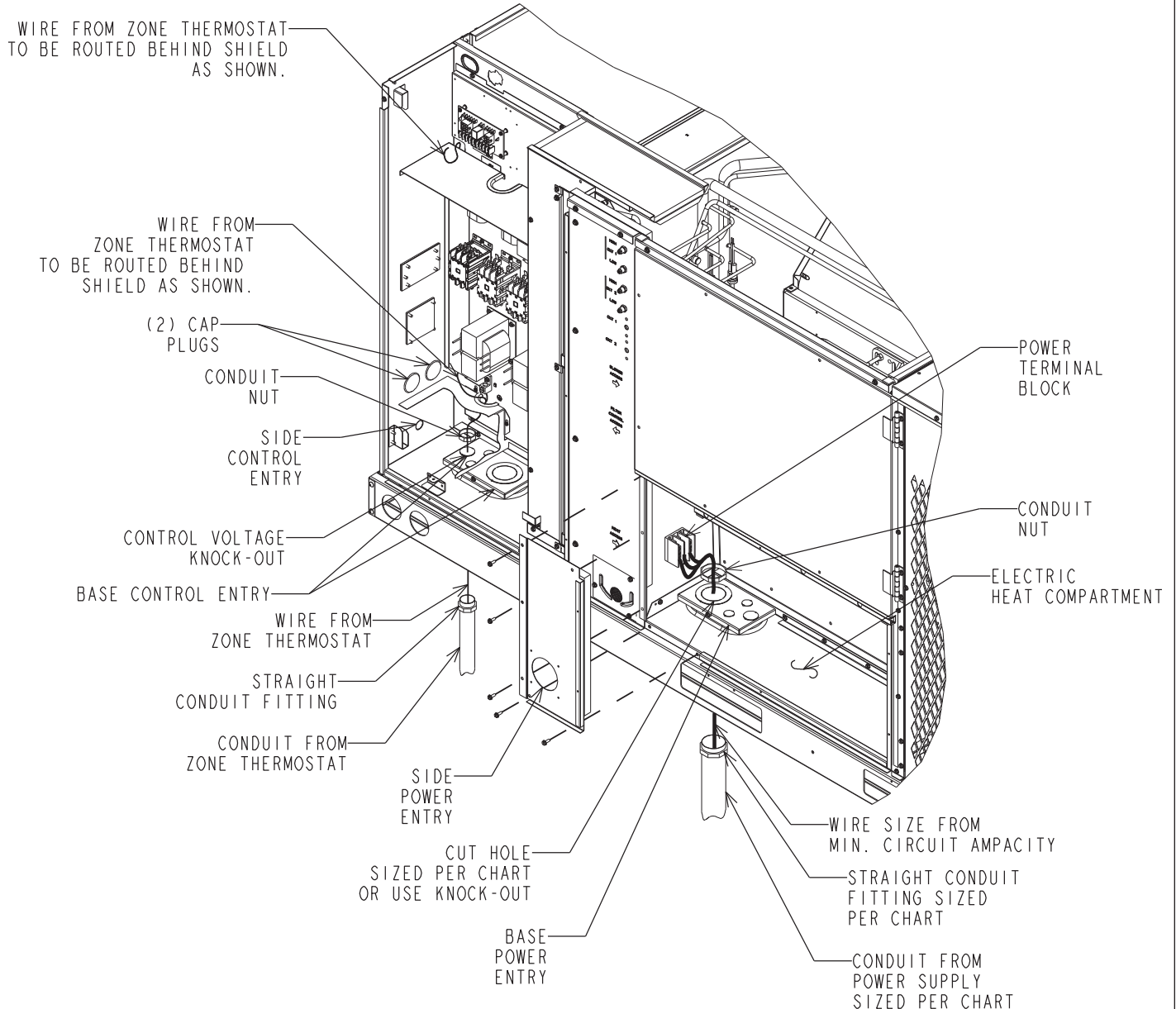
### D. GROUNDING

#### **▲ WARNING**

**THE UNIT MUST BE PERMANENTLY GROUNDED. A GROUNDING LUG IS PROVIDED IN THE ELECTRIC HEAT ACCESS AREA FOR A GROUND WIRE. FAILURE TO GROUND THIS UNIT CAN RESULT IN FIRE OR ELECTRICAL SHOCK CAUSING PROPERTY DAMAGE, SEVERE PERSONAL INJURY OR DEATH.**



**FIGURE 14**



GROUNDING MAY ALSO BE ACCOMPLISHED BY GROUNDING THE POWER LINE CONDUIT TO THE UNIT. MAKE SURE THE CONDUIT NUT LOCKING TEETH HAVE PIERCED THE INSULATING PAINT FILM OF THE SIDE PANEL.

**E. THERMOSTAT**

The thermostat should be mounted on an inside wall about five feet above the floor in a location where it will not be affected by unconditioned air, sun, or drafts from open doors or other sources. READ installation instructions in air conditioner thermostat package CAREFULLY because each has some different wiring requirements.

**XII. INDOOR AIR FLOW DATA**

Belt-drive blower models have motor sheaves set for proper CFM at a typical external static. See Tables C through G for blower performance.

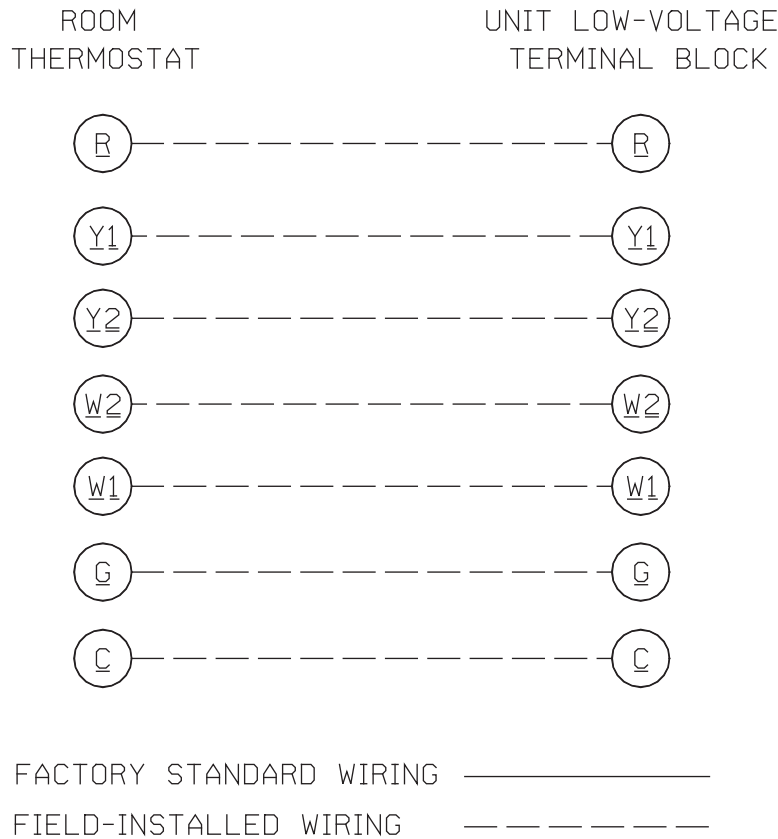
**XIII. CRANKCASE HEAT (OPTIONAL)**

Crankcase heaters are standard on 6 ton and single stage 7½. Crankcase heat is not required on other models, but may be desirable under certain conditions.

**XIV. PRE-START CHECK**

1. Is unit properly located and slightly slanted toward indoor condensate drain?
2. Is ductwork insulated, weatherproofed, with proper spacing to combustible materials?
3. Is air free to travel to and from outdoor coil? (See Figure 4.)
4. Is the wiring correct, tight, and according to unit wiring diagram?
5. Is unit grounded?
6. Are field supplied air filters in place and clean?
7. Do the outdoor fan and indoor blower turn freely without rubbing, and are they tight on the motor shafts?

**FIGURE 15  
THERMOSTAT  
CONNECTIONS  
DIAGRAM**



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## XV. STARTUP

1. Turn thermostat to "OFF," turn "on" power supply at disconnect switch.
2. Turn temperature setting as high as it will go.
3. Turn fan switch to "ON."
4. Indoor blower should run. Be sure it is running in the right direction.
5. Turn fan switch to "AUTO." Turn system switch to "COOL" and turn temperature setting below room temperature. Unit should run in cooling mode.
6. Is outdoor fan operating correctly in the right direction?
7. Is compressor running correctly.

Record the following after the unit has run some time.

- A. Operating Mode \_\_\_\_\_
- B. Discharge Pressures (High) \_\_\_\_\_ PSIG [kPa]
- C. Vapor Pressure at Compressors (Low) \_\_\_\_\_ PSIG [kPa]
- D. Vapor Line Temperature at Compressors \_\_\_\_\_ °F [C°].
- E. Indoor Dry Bulb \_\_\_\_\_ °F [C°].
- F. Indoor Wet Bulb \_\_\_\_\_ °F [C°].
- G. Outdoor Dry Bulb \_\_\_\_\_ °F [C°].
- H. Outdoor Wet Bulb \_\_\_\_\_ °F [C°].
- I. Voltage at Contactor \_\_\_\_\_ Volts
- J. Current at Contactors \_\_\_\_\_ Amps
- K. Model Number \_\_\_\_\_
- L. Serial Number \_\_\_\_\_
- M. Location \_\_\_\_\_
- N. Owner \_\_\_\_\_
- O. Date \_\_\_\_\_

8. Turn thermostat system switch to "HEAT." Unit compressors should stop. Raise temperature setting to above room temperature. Unit should run in heating mode and auxiliary heaters, if installed, should come on.
9. Check the refrigerant charge using the instructions located on unit charging chart. Replace service port caps. Service port cores are for system access only and will leak if not tightly capped.
10. Adjust discharge air grilles and balance system.
11. Check ducts for condensation and air leaks.
12. Check unit for tubing and sheet metal rattles.
13. Instruct the owner on operation and maintenance.
14. Leave "INSTALLATION" and "USE AND CARE" instructions with owner

## XVI. OPERATION

### COOLING MODE

With thermostat in the cool mode, fan auto and the room temperature higher than the thermostat setting:

- A. Indoor blower contactor is energized through thermostat contact (G).
- B. Compressor contactors are energized through thermostat contacts (Y1) & (Y2) and high pressure controls.
- C. Economizer enthalpy control (if installed) controls operation of first-stage cooling and positions fresh air damper to maintain mixed air temperature. Second-stage cooling operates normally as required by second stage of thermostats.
- D. The system will continue in cooling operation as long as all safety controls are closed, until the thermostat is satisfied.

### HEATING MODE

With the thermostat in heat mode, fan on auto, and the room temperature lower than the thermostat setting, the Indoor blower contactor is energized through thermostat contact (G).

#### **▲ WARNING**

**ONLY ELECTRIC HEATER KITS SUPPLIED BY THIS MANUFACTURER AS DESCRIBED IN THIS PUBLICATION HAVE BEEN DESIGNED, TESTED, AND EVALUATED FOR USE WITH THIS UNIT. USE OF ANY OTHER MANUFACTURED ELECTRIC HEATERS INSTALLED WITHIN THIS UNIT MAY CAUSE HAZARDOUS CONDITIONS RESULTING IN PROPERTY DAMAGE, FIRE, BODILY INJURY OR DEATH.**

In the heating mode, the thermostat will energize one or more supplementary heaters.

## XVII. MISCELLANEOUS

### REPLACEMENT PARTS

Contact your local distributor for a complete parts list.

# XVIII. AIRFLOW DATA TABLES

## AIR-FLOW PERFORMANCE – 6 TON MODELS

Air Flow CFM [L/s]		Model 6 Ton Voltage 208/230, 460, 575 — 3 phase																															
		External Static Pressure — Inches of Water [kPa]																															
0.1 [.02]		0.2 [.05]		0.3 [.07]		0.4 [.10]		0.5 [.12]		0.6 [.15]		0.7 [.17]		0.8 [.20]		0.9 [.22]		1.0 [.25]		1.1 [.27]		1.2 [.30]		1.3 [.32]		1.4 [.35]		1.5 [.37]					
RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W
1800 [849]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
1900 [897]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
2000 [944]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
2100 [991]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
2200 [1038]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
2300 [1085]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
2400 [1133]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
2500 [1180]	805	751	852	826	897	900	940	973	981	1046	1021	1118	1059	1188	1095	1258	1129	1327	1162	1395	1192	1462	1221	1529	1248	1594	1273	1658	—				
2600 [1227]	831	813	877	890	922	967	964	1043	1005	1118	1044	1191	1081	1265	1116	1337	1149	1408	1181	1478	1211	1548	1239	1616	1265	1684	—	—	—				
2700 [1274]	858	878	904	958	947	1037	989	1115	1029	1192	1067	1288	1103	1344	1137	1418	1170	1492	1201	1565	1230	1637	1257	1708	1282	1778	—	—	—				
2800 [1321]	886	947	931	1029	973	1110	1014	1190	1053	1270	1091	1349	1126	1426	1160	1503	1191	1579	1221	1654	1250	1728	1276	1802	—	—	—	—	—				

NOTE: L-Drive left of bold line, M-Drive right of bold line.

Drive Package	L					M						
Motor H.P. [W]	1.5 [1118.6]					1.5 [1118.6]						
Blower Sheave	AK66					AK66						
Motor sheave	1VP-44					1VP-50						
Turns Open	0	1	2	3	4	5	0	1	2	3	4	5
RPM	1119	1072	1019	967	915	859	1267	1215	1163	1113	1064	1015

- NOTES: 1. Factory sheave settings are shown in bold type.  
 2. Do not set motor sheave below minimum turns open shown.  
 3. Re-adjustment of sheave required to achieve rated airflow at ARI minimum E.S.P.  
 4. Drive data shown is for horizontal airflow with dry coil. add component resistance to duct resistance to determine total E.S.P.

## COMPONENT AIR RESISTANCE, IWC 6 TONS [21.10 kW]

### AIRFLOW CORRECTION FACTORS 6 TONS [21.10 kW]

Actual CFM [L/s]	1800 [849]	2000 [944]	2200 [1038]	2400 [1133]	2600 [1227]	2800 [1321]
Total MBH	0.97	0.98	0.99	1.00	1.01	1.02
Sensible MBH	0.91	0.94	0.97	1.00	1.02	1.05
Power KW	0.99	0.99	0.99	1.00	1.00	1.01

Component	Standard Indoor Airflow-CFM [L/s]						Resistance-Inches Water [Kpa]					
	1800 [849]	2000 [944]	2200 [1038]	2400 [1133]	2600 [1227]	2800 [1321]	0.031 [0.008]	0.036 [0.009]	0.041 [0.01]	0.047 [0.012]	0.051 [0.013]	0.055 [0.014]
Wet Coil	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
Concentric Diffuser FXRN-FA65 or FA75 & Transition RXMC-CE05	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
Concentric Diffuser FXRN-AA61 or AA71 & Transition RXMC-CE05	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
Economizer 100% R.A. Damper Open	0.02 [0.005]	0.03 [0.007]	0.04 [0.01]	0.05 [0.012]	0.06 [0.015]	0.07 [0.017]	0.02 [0.005]	0.03 [0.007]	0.04 [0.01]	0.05 [0.012]	0.06 [0.015]	0.07 [0.017]
Horizontal Economiser 100% R.A. Open	0.02 [0.005]	0.02 [0.005]	0.03 [0.007]	0.03 [0.007]	0.04 [0.01]	0.04 [0.01]	0.02 [0.005]	0.02 [0.005]	0.03 [0.007]	0.03 [0.007]	0.04 [0.01]	0.04 [0.01]
Horizontal Economiser 100% O.A. Damper Open	0.07 [0.017]	0.07 [0.017]	0.07 [0.017]	0.08 [0.02]	0.08 [0.02]	0.08 [0.02]	0.07 [0.017]	0.07 [0.017]	0.07 [0.017]	0.08 [0.02]	0.08 [0.02]	0.08 [0.02]

# AIR-FLOW PERFORMANCE – 7.5 TON MODELS

Air Flow CFM [L/s]	Capacity 7.5 Ton [26.4 kW]																			
	External Static Pressure—Inches of Water [kPa]																			
	0.1 [0.02]	0.2 [0.05]	0.3 [0.07]	0.4 [0.10]	0.5 [0.12]	0.6 [0.15]	0.7 [0.17]	0.8 [0.20]	0.9 [0.22]	1.0 [0.25]	1.1 [0.27]	1.2 [0.30]	1.3 [0.32]	1.4 [0.35]	1.5 [0.37]	1.6 [0.40]	1.7 [0.42]	1.8 [0.45]	1.9 [0.47]	2.0 [0.50]
2400 [1133]	—	—	—	540	580	620	660	700	740	780	820	860	900	940	980	1020	1060	1100	1140	1180
2500 [1180]	—	—	—	552	593	633	673	713	753	793	833	873	913	953	993	1033	1073	1113	1153	1193
2600 [1227]	—	—	—	564	605	645	685	725	765	805	845	885	925	965	1005	1045	1085	1125	1165	1205
2700 [1274]	—	—	—	576	617	657	697	737	777	817	857	897	937	977	1017	1057	1097	1137	1177	1217
2800 [1321]	—	—	—	588	629	669	709	749	789	829	869	909	949	989	1029	1069	1109	1149	1189	1229
2900 [1369]	—	—	—	600	641	681	721	761	801	841	881	921	961	1001	1041	1081	1121	1161	1201	1241
3000 [1416]	546	741	831	921	1011	1101	1191	1281	1371	1461	1551	1641	1731	1821	1911	2001	2091	2181	2271	2361
3100 [1463]	560	804	894	984	1074	1164	1254	1344	1434	1524	1614	1704	1794	1884	1974	2064	2154	2244	2334	2424
3200 [1510]	576	876	966	1056	1146	1236	1326	1416	1506	1596	1686	1776	1866	1956	2046	2136	2226	2316	2406	2496
3300 [1557]	592	954	1044	1134	1224	1314	1404	1494	1584	1674	1764	1854	1944	2034	2124	2214	2304	2394	2484	2574
3400 [1605]	607	1030	1120	1210	1300	1390	1480	1570	1660	1750	1840	1930	2020	2110	2200	2290	2380	2470	2560	2650
3500 [1652]	622	1112	1202	1292	1382	1472	1562	1652	1742	1832	1922	2012	2102	2192	2282	2372	2462	2552	2642	2732
3600 [1699]	638	1202	1292	1382	1472	1562	1652	1742	1832	1922	2012	2102	2192	2282	2372	2462	2552	2642	2732	2822

NOTE: L-Drive left of 1st bold line, M-Drive in middle of bold lines, N-Drive right of 2nd bold line.

Drive Package	L					M					N							
Motor H.P. [W]	2.0 [1491.4]					2.0 [1491.4]					3.0 [2237.1]							
Blower Sheave	BK110					BK90					BK65							
Motor Sheave	1VP-44					1VP-44					1VP-44							
Turns Open	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
RPM	682	650	620	587	555	523	869	838	806	774	742	710	1157	1106	1056	1005	954	904

- NOTES: 1. Factory sheave settings are shown in bold print.  
 2. Re-adjustment of sheave required to achieve rated airflow at ARI minimum E.S.P.  
 3. Do not operate above blower RPM shown as motor overloading will occur.  
 4. Do not set motor sheave below one turn open.

# AIRFLOW CORRECTION FACTORS 7.5 TON [26.4 kW]

ACTUAL—CFM [L/s]	2600 [1227]	2800 [1321]	3000 [1416]	3200 [1510]	3400 [1605]	3600 [1699]	3800 [1793]
TOTAL MBH	0.97	0.98	0.99	1.00	1.01	1.02	1.03
SENSIBLE MBH	0.91	0.94	0.97	1.00	1.02	1.05	1.08
POWER kW	0.99	0.99	0.99	1.00	1.00	1.01	1.02

- NOTES: 1. Multiply correction factor times gross performance data.  
 2. Resulting sensible capacity cannot exceed total capacity.

# [ ] Designates Metric Conversions

# COMPONENT AIR RESISTANCE, IWC 7.5 TON [26.4 kW]

Component	Standard Indoor Airflow—CFM [L/s]						Resistance—Inches Water [kPa]					
	2400 [1133]	2600 [1227]	2800 [1321]	3000 [1416]	3200 [1510]	3400 [1604]	3600 [1699]					
Wet Coil	0.047 [0.012]	0.051 [0.013]	0.055 [0.014]	0.060 [0.015]	0.065 [0.016]	0.071 [0.018]	0.076 [0.019]					
Concentric Diffuser RXRN-FA65 or FA75 & Transition RXMC-CD04	DNA	0.17 [0.042]	0.20 [0.050]	0.25 [0.062]	0.31 [0.077]	0.37 [0.092]	DNA					
Concentric Diffuser RXRN-AA61 or AA71 & Transition RXMC-CE05	DNA	DNA	DNA	DNA	DNA	DNA	0.17 [0.042]					
Economizer	0.05 [0.012]	0.06 [0.015]	0.07 [0.017]	0.08 [0.020]	0.09 [0.022]	0.10 [0.025]	0.11 [0.027]					
100% R.A. Damper Open	0.03 [0.007]	0.04 [0.009]	0.04 [0.010]	0.05 [0.011]	0.05 [0.012]	0.06 [0.014]	0.06 [0.015]					
Horizontal Economizer	0.08 [0.020]	0.08 [0.020]	0.08 [0.020]	0.10 [0.024]	0.11 [0.027]	0.12 [0.030]	0.13 [0.032]					
100% O.A. Damper Open	0.08 [0.020]	0.08 [0.020]	0.08 [0.020]	0.10 [0.024]	0.11 [0.027]	0.12 [0.030]	0.13 [0.032]					

NOTE: Add component resistance to duct resistance to determine total external static pressure.  
 DNA = Data not Available.

# AIR-FLOW PERFORMANCE – 8.5 TON MODELS

Capacity	8.5 Ton [29.9 kW]																			
	External Static Pressure—Inches of Water [kPa]																			
	0.1 [0.02]	0.2 [0.05]	0.3 [0.07]	0.4 [0.10]	0.5 [0.12]	0.6 [0.15]	0.7 [0.17]	0.8 [0.20]	0.9 [0.22]	1.0 [0.25]	1.1 [0.27]	1.2 [0.30]	1.3 [0.32]	1.4 [0.35]	1.5 [0.37]	1.6 [0.40]	1.7 [0.42]	1.8 [0.45]	1.9 [0.47]	2.0 [0.50]
2700 [127.4]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2800 [132.1]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2900 [136.9]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3000 [141.6]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3100 [146.3]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3200 [151.0]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3300 [155.7]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3400 [160.5]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3500 [165.2]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3600 [169.9]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3700 [174.6]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3800 [179.3]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3900 [184.1]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4000 [188.8]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4100 [193.5]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

NOTE: L-Drive left of bold line, M-Drive right of bold line.

Drive Package	L						M					
Motor H.P. [W]	2.0 [1491.4]						3.0 [2237.1]					
Blower Sheave	BK90						BK65					
Motor Sheave	1VP-44						1VP-44					
Turns Open	1	2	3	4	5	6	1	2	3	4	5	6
RPM	860	824	791	757	723	690	1148	1098	1049	999	949	899

- NOTES: 1. Factory sheave settings are shown in bold print.  
 2. Re-adjustment of sheave required to achieve rated airflow at ARI minimum E.S.P.  
 3. Do not operate above blower RPM shown as motor overloading will occur.  
 4. Do not set motor sheave below one turn open.

## AIRFLOW CORRECTION FACTORS 8.5 TON [29.9 kW]

ACTUAL—CFM [L/s]	2600 [1227]	2800 [1321]	3000 [1416]	3200 [1510]	3400 [1605]	3600 [1699]	3800 [1793]	4000 [1888]	4200 [1982]
TOTAL MBH	0.96	0.97	0.98	0.99	1.00	1.01	1.02	1.03	1.04
SENSIBLE MBH	0.88	0.91	0.94	0.97	1.00	1.03	1.05	1.07	1.09
POWER kW	0.99	0.99	0.99	1.00	1.00	1.01	1.01	1.02	1.03

- NOTES: 1. Multiply correction factor times gross performance data.  
 2. Resulting sensible capacity cannot exceed total capacity.

### [ ] Designates Metric Conversions

## COMPONENT AIR RESISTANCE, IWC 8.5 TON [29.9 kW]

Component	Standard Indoor Airflow—CFM [L/s]											
	2600 [1227]	2800 [1321]	3000 [1416]	3200 [1510]	3400 [1604]	3600 [1699]	3800 [1793]	4000 [1888]	4200 [1982]			
Wet Coil	0.051 [0.013]	0.055 [0.014]	0.060 [0.015]	0.065 [0.016]	0.071 [0.018]	0.076 [0.019]	0.082 [0.020]	0.087 [0.022]	0.093 [0.023]			
	0.17 [0.042]	0.20 [0.050]	0.25 [0.062]	0.31 [0.077]	0.37 [0.092]	DNA	DNA	DNA	DNA			
Concentric Diffuser RXRM-FA65 or FA75 & Transition RXMC-CD04	DNA	DNA	DNA	DNA	DNA	0.17 [0.042]	0.18 [0.045]	0.21 [0.052]	0.24 [0.060]			
Concentric Diffuser RXRM-AA61 or AA71 & Transition RXMC-CE05	0.06 [0.015]	0.07 [0.017]	0.08 [0.020]	0.09 [0.022]	0.10 [0.025]	0.11 [0.027]	0.12 [0.030]	0.13 [0.032]	0.14 [0.035]			
Economizer 100% R.A. Damper Open	0.04 [0.009]	0.04 [0.010]	0.05 [0.012]	0.05 [0.012]	0.06 [0.014]	0.06 [0.015]	0.07 [0.017]	0.08 [0.020]	0.09 [0.021]			
Horizontal Economizer 100% R.A. Damper Open	0.08 [0.020]	0.08 [0.020]	0.10 [0.024]	0.11 [0.027]	0.12 [0.030]	0.13 [0.032]	0.15 [0.036]	0.16 [0.040]	0.18 [0.044]			

NOTE: Add component resistance to duct resistance to determine total external static pressure.  
 DNA = Data not Available.









## XIX. HEATER KIT CHARACTERISTICS

TABLE A

### AUXILIARY HEATER KITS CHARACTERISTICS AND APPLICATION (PCG MODELS)

208/240V – 3 PHASE

UNIT MODEL NUMBER PCG-	HEATER KIT MODEL NO. RXJJ-	HEATER kW @ 208/240 V/ 3 PHASE	HEATER KIT FLA	UNIT MIN. CKT. AMPACITY	MAX. FUSE OR CKT. BKR. SIZE (CKT. BKR. MUST BE HACR TYPE FOR USA)
072A-3L	NONE	—	—	37/37	50/50
	CC10C	7.2/9.6	20.0/23.1	37/37	50/50
	CC15C	10.8/14.4	30.0/34.6	45/51	50/60
	CC20C	14.4/19.2	40.0/46.2	57/65	60/70
	CC30C	21.6/28.8	60.0/69.3	82/94	90/100
085A-4L	NONE	—	—	42/42	60/60
	CC10C	7.2/9.6	20.0/23.1	42/42	60/60
	CC15C	10.8/14.4	30.0/34.6	48/54	60/60
	CC20C	14.4/19.2	40.0/46.2	60/68	60/70
	CC30C	21.6/28.8	60.0/69.3	85/97	90/100
	CC40C	28.8/38.4	80.1/92.4	111/126	125/150
090A-4L	NONE	—	—	43/43	50/50
	CC10C	7.2/9.6	20.0/23.1	43/43	50/50
	CC15C	10.8/14.4	30.0/34.6	48/54	50/60
	CC20C	14.4/19.2	40.0/46.2	60/68	60/70
	CC30C	21.6/28.8	60.0/69.3	85/97	90/100
	CC40C	28.8/38.4	80.1/92.4	111/126	125/150
102A-4L	NONE	—	—	54/54	60/60
	CC10C	7.2/9.6	20.0/23.1	54/54	60/60
	CC15C	10.8/14.4	30.0/34.6	54/60	60/60
	CC20C	14.4/19.2	40.0/46.2	67/74	70/80
	CC30C	21.6/28.8	60.0/69.3	92/103	100/110
	CC40C	28.8/38.4	80.1/92.4	117/132	125/150

# HEATER KIT CHARACTERISTICS (continued)

TABLE B

## AUXILIARY HEATER KITS CHARACTERISTICS AND APPLICATION (PCG MODELS)

208/240V – 3 PHASE

UNIT MODEL NUMBER PCG-	HEATER KIT MODEL NO. RXJJ-	HEATER kW @ 208/240 V	HEATER KIT FLA	UNIT MIN. CKT. AMPACITY	MAX. FUSE OR CKT. BKR. SIZE (CKT. BKR. MUST BE HACR TYPE FOR USA)
120A-4L	NONE	—	—	54/54	60/60
	CC10C	7.2/9.6	20.0/23.1	54/54	60/60
	CC15C	10.8/14.4	30.0/34.6	54/60	60/60
	CC20C	14.4/19.2	40.0/46.2	67/74	70/80
	CC30C	21.6/28.8	60.0/69.3	92/103	100/110
	CC40C	28.8/38.4	80.1/92.4	117/132	125/150
	CC50C	36.1/48.0	100.1/115.5	142/161	150/175
150A-4L	NONE	—	—	71/71	90/90
	CC10C	7.2/9.6	20.0/23.1	71/71	90/90
	CC15C	10.8/14.4	30.0/34.6	71/71	90/90
	CC20C	14.4/19.2	40.0/46.2	74/82	90/90
	CC30C	21.6/28.8	60.0/69.3	99/111	100/125
	CC40C	28.8/38.4	80.1/92.4	124/139	125/150
	CC50C	36.1/48.0	100.1/115.5	149/168	150/175
072A-4L	NONE	—	—	18	25
	CC10D	9.6	11.5	18	25
	CC15D	14.4	17.3	26	30
	CC20D	19.2	23.1	33	35
	CC30D	28.8	34.6	47	50
085A-4L	NONE	—	—	21	30
	CC10D	9.6	11.5	21	30
	CC15D	14.4	17.3	27	30
	CC20D	19.2	23.1	34	35
	CC30D	28.8	34.6	49	50
	CC40D	38.4	46.2	63	70

# HEATER KIT CHARACTERISTICS (continued)

TABLE C

## AUXILIARY HEATER KITS CHARACTERISTICS AND APPLICATION (PCG MODELS)

480V – 3 PHASE

UNIT MODEL NUMBER PCG-	HEATER KIT MODEL NO. RXJJ-	HEATER kW @ 480 V	HEATER KIT FLA	UNIT MIN. CKT. AMPACITY	MAX. FUSE OR CKT. BKR. SIZE (CKT. BKR. MUST BE HACR TYPE FOR USA)
090A-4L	NONE	—	—	21	25
	CC10D	9.6	11.5	21	25
	CC15D	14.4	17.3	27	30
	CC20D	19.2	23.1	34	35
	CC30D	28.8	34.6	49	50
	CC40D	38.4	46.2	63	70
102A-4L	NONE	—	—	26	30
	CC10C	9.6	11.5	6	30
	CC15D	14.4	17.3	31	35
	CC20D	19.2	23.1	38	40
	CC30D	28.8	34.6	52	60
	CC40D	38.4	46.2	67	70
120A-4L	NONE	—	—	28	35
	CC10D	9.6	11.5	28	35
	CC15D	14.4	17.3	31	35
	CC20D	19.2	23.1	38	40
	CC30D	28.8	34.6	52	60
	CC40D	38.4	46.2	67	70
	CC50D	48.0	57.7	81	90
150A-4L	NONE	—	—	36	45
	CC10D	9.6	11.5	36	45
	CC15D	14.4	17.3	36	45
	CC20D	19.2	23.1	42	45
	CC30D	28.8	34.6	56	60
	CC40D	38.4	46.2	71	80
	CC50D	48.0	57.7	85	90

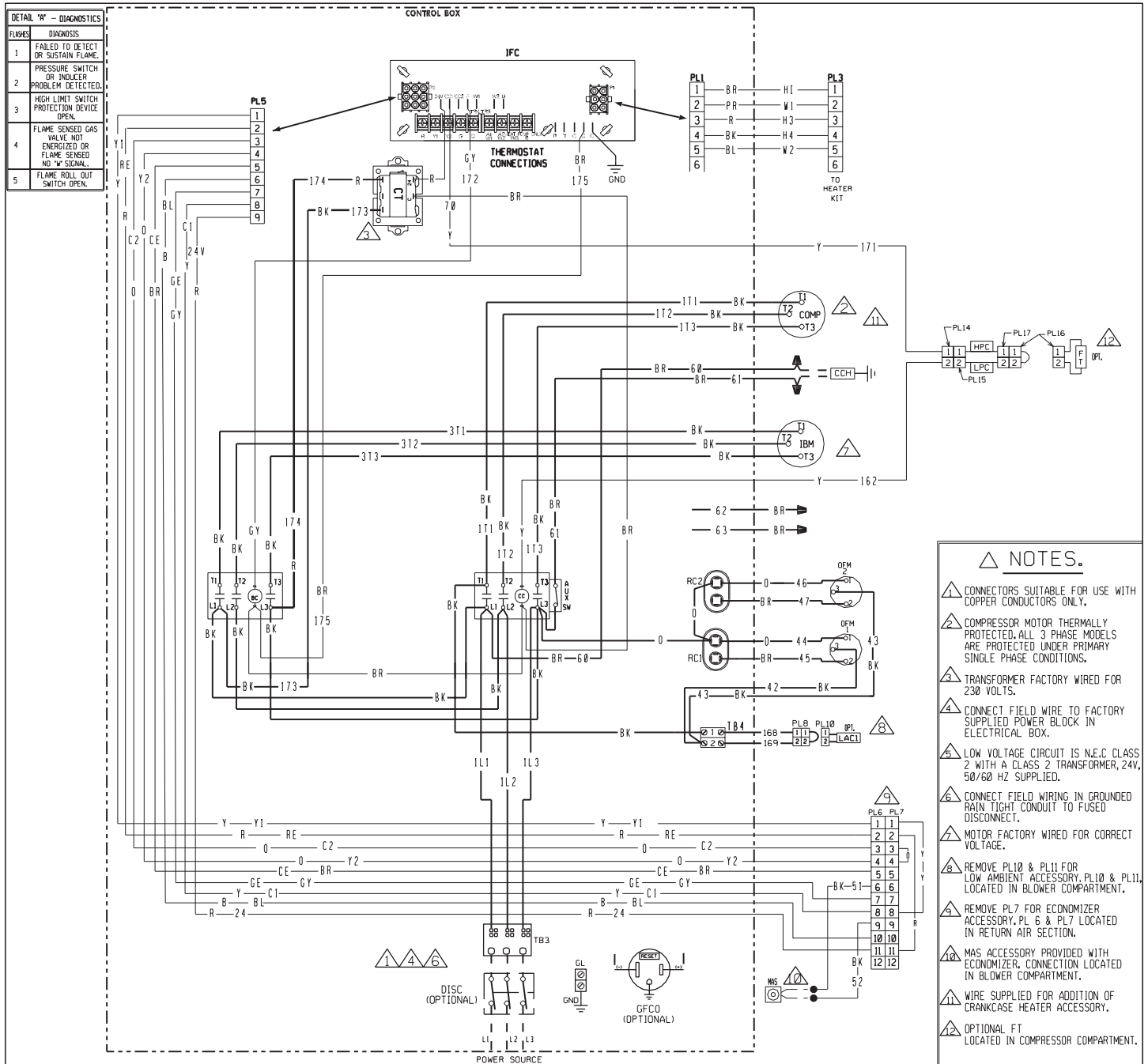
# XX. TROUBLE SHOOTING CHART

**▲ WARNING**

**DISCONNECT ALL POWER TO UNIT BEFORE SERVICING. CONTACTOR MAY BREAK ONLY ONE SIDE. FAILURE TO SHUT OFF POWER CAN CAUSE ELECTRICAL SHOCK RESULTING IN PERSONAL INJURY OR DEATH.**

SYMPTOM	POSSIBLE CAUSE	REMEDY
Unit will not run	<ul style="list-style-type: none"> <li>Power off or loose electrical connection</li> <li>Thermostat out of calibration-set too high</li> <li>Defective contactor</li> <li>Blown fuses</li> <li>Transformer defective</li> <li>High pressure control open (if provided)</li> <li>Interconnecting low voltage wiring damaged</li> </ul>	<ul style="list-style-type: none"> <li>Check for correct voltage at compressor contactor in control box</li> <li>Reset</li> <li>Check for 24 volts at contactor coil - replace if contacts are open</li> <li>Replace fuses</li> <li>Check wiring-replace transformer</li> <li>Reset-also see high head pressure remedy-</li> <li>Replace thermostat wiring</li> </ul>
Condenser fan runs, compressor doesn't	<ul style="list-style-type: none"> <li>Run capacitor defective (single phase only)</li> <li>Loose connection</li> <li>Compressor stuck, grounded or open motor winding open internal overload.</li> <li>Low voltage condition</li> </ul>	<ul style="list-style-type: none"> <li>Replace</li> <li>Check for correct voltage at compressor - check &amp; tighten all connections</li> <li>Wait at least 2 hours for overload to reset. If still open, replace the compressor. At compressor terminals, voltage must be within 10% of rating plate volts when unit is operating.</li> </ul>
Insufficient cooling	<ul style="list-style-type: none"> <li>Improperly sized unit</li> <li>Improper airflow</li> <li>Incorrect refrigerant charge</li> <li>Air, non-condensibles or moisture in system</li> <li>Incorrect voltage</li> </ul>	<ul style="list-style-type: none"> <li>Recalculate load</li> <li>Check - should be approximately 400 CFM [188.78 L/s] per ton.</li> <li>Charge per procedure attached to unit service panel.</li> <li>Recover refrigerant, evacuate &amp; recharge, add filter drier</li> <li>At compressor terminals, voltage must be within 10% of rating plate volts when unit is operating.</li> </ul>
Compressor short cycles	<ul style="list-style-type: none"> <li>Incorrect voltage</li> <li>Defective overload protector</li> <li>Refrigerant undercharge</li> </ul>	<ul style="list-style-type: none"> <li>At compressor terminals, voltage must be <math>\pm</math> 10% of nameplate marking when unit is operating.</li> <li>Replace - check for correct voltage</li> <li>Add refrigerant</li> </ul>
Registers sweat	<ul style="list-style-type: none"> <li>Low evaporator airflow</li> </ul>	<ul style="list-style-type: none"> <li>Increase speed of blower or reduce restriction - replace air filter</li> </ul>
High head-low vapor pressures	<ul style="list-style-type: none"> <li>Restriction in liquid line, expansion device or filter drier</li> <li>Flow check piston size too small</li> <li>Incorrect capillary tubes</li> <li>TXV does not open</li> </ul>	<ul style="list-style-type: none"> <li>Remove or replace defective component</li> <li>Change to correct size piston</li> <li>Change coil assembly</li> <li>Replace TXV</li> </ul>
High head-high or normal vapor pressure - Cooling mode	<ul style="list-style-type: none"> <li>Dirty condenser coil</li> <li>Refrigerant overcharge</li> <li>Condenser fan not running</li> <li>Air or non-condensibles in system</li> </ul>	<ul style="list-style-type: none"> <li>Clean coil</li> <li>Correct system charge</li> <li>Repair or replace</li> <li>Recover refrigerant, evacuate &amp; recharge</li> </ul>
High head-high or normal vapor pressure - Heating mode	<ul style="list-style-type: none"> <li>Low air flow - condenser coil</li> <li>Refrigerant overcharge</li> <li>Air or non-condensibles in system</li> <li>Dirty condenser coil</li> </ul>	<ul style="list-style-type: none"> <li>Check filters - correct to speed</li> <li>Correct system charge</li> <li>Recover refrigerant, evacuate &amp; recharge</li> <li>Check filter - clean coil</li> </ul>
Low head-high vapor pressures	<ul style="list-style-type: none"> <li>Defective Compressor valves</li> </ul>	<ul style="list-style-type: none"> <li>Replace compressor</li> </ul>
Low vapor - cool compressor - iced evaporator coil	<ul style="list-style-type: none"> <li>Low evaporator airflow</li> <li>Operating below 65°F outdoors</li> <li>Moisture in system</li> <li>TXV limiting refrigerant flow</li> </ul>	<ul style="list-style-type: none"> <li>Increase speed of blower or reduce restriction - replace air filter</li> <li>Add Low Ambient Kit</li> <li>Recover refrigerant - evacuate &amp; recharge - add filter drier</li> <li>Replace TXV</li> </ul>
High vapor pressure	<ul style="list-style-type: none"> <li>Excessive load</li> <li>Defective compressor</li> </ul>	<ul style="list-style-type: none"> <li>Recheck load calculation</li> <li>Replace</li> </ul>
Fluctuating head & vapor pressures	<ul style="list-style-type: none"> <li>TXV hunting</li> <li>Air or non-condensibles in system</li> </ul>	<ul style="list-style-type: none"> <li>Check TXV bulb clamp - check air distribution on coil - replace TXV</li> <li>Recover refrigerant, evacuate &amp; recharge</li> </ul>
Gurgle or pulsing noise at expansion device or liquid line	<ul style="list-style-type: none"> <li>Air or non-condensibles in system</li> </ul>	<ul style="list-style-type: none"> <li>Recover refrigerant, evacuate &amp; recharge</li> </ul>

# XXI. WIRING DIAGRAMS



COMPONENT CODE	WIRING INFORMATION	WIRE COLOR CODE
AUX SW AUXILIARY SWITCH	LINE VOLTAGE	BK BLACK
BC BLOWER CONTACTOR	-FACTORY STANDARD	BR BROWN
CC COMPRESSOR CONTACTOR	-FACTORY OPTION	BL BLUE
CC COMPRESSOR CONTACTOR	-FIELD INSTALLED	G GREEN
CCH CRANKCASE HEATER	LOW VOLTAGE	GY GRAY
COMP COMPRESSOR	-FACTORY STANDARD	O ORANGE
CT CONTROL TRANSFORMER	-FACTORY OPTION	PR PURPLE
DISC DISCONNECT SWITCH	-FIELD INSTALLED	R RED
FLMS FLAME SENSOR	REPLACEMENT WIRE	W WHITE
FT FREEZE STAT	-MUST BE THE SAME SIZE AND TYPE OF INSULATION AS ORIGINAL (105° C MIN.)	Y YELLOW
GFCO GROUND FAULT CONVENIENCE OUTLET	WARNING	
GL GROUND LUG	-CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C., AND LOCAL CODES AS APPLICABLE.	
GND GROUND		
GV GAS VALVE		
HPC HIGH PRESSURE CONTROL		
IBM INDOOR BLOWER MOTOR BELT DRIVE		
IDM INDUCED DRAFT MOTOR		
IFC INTEGRATED FURNACE CONTROL		
LAC LOW AMBIENT COOLING CONTROL		
LC LIMIT CONTROL		
LPC LOW PRESSURE CONTROL		
LPC LOW PRESSURE CONTROL		
MAS MIX AIR SENSOR		
MRLC MANUAL RESET LIMIT CONTROL		
NPC NEGATIVE PRESSURE CONTROL		
NPC NEGATIVE PRESSURE CONTROL		
OFM OUTDOOR FAN MOTOR		
PLUG		
PL PLUG		
RC RUN CAPACITOR		
SE SPARK ELECTRODE		
TB TERMINAL BLOCK		
TB TERMINAL BLOCK		
WIRE NUT		

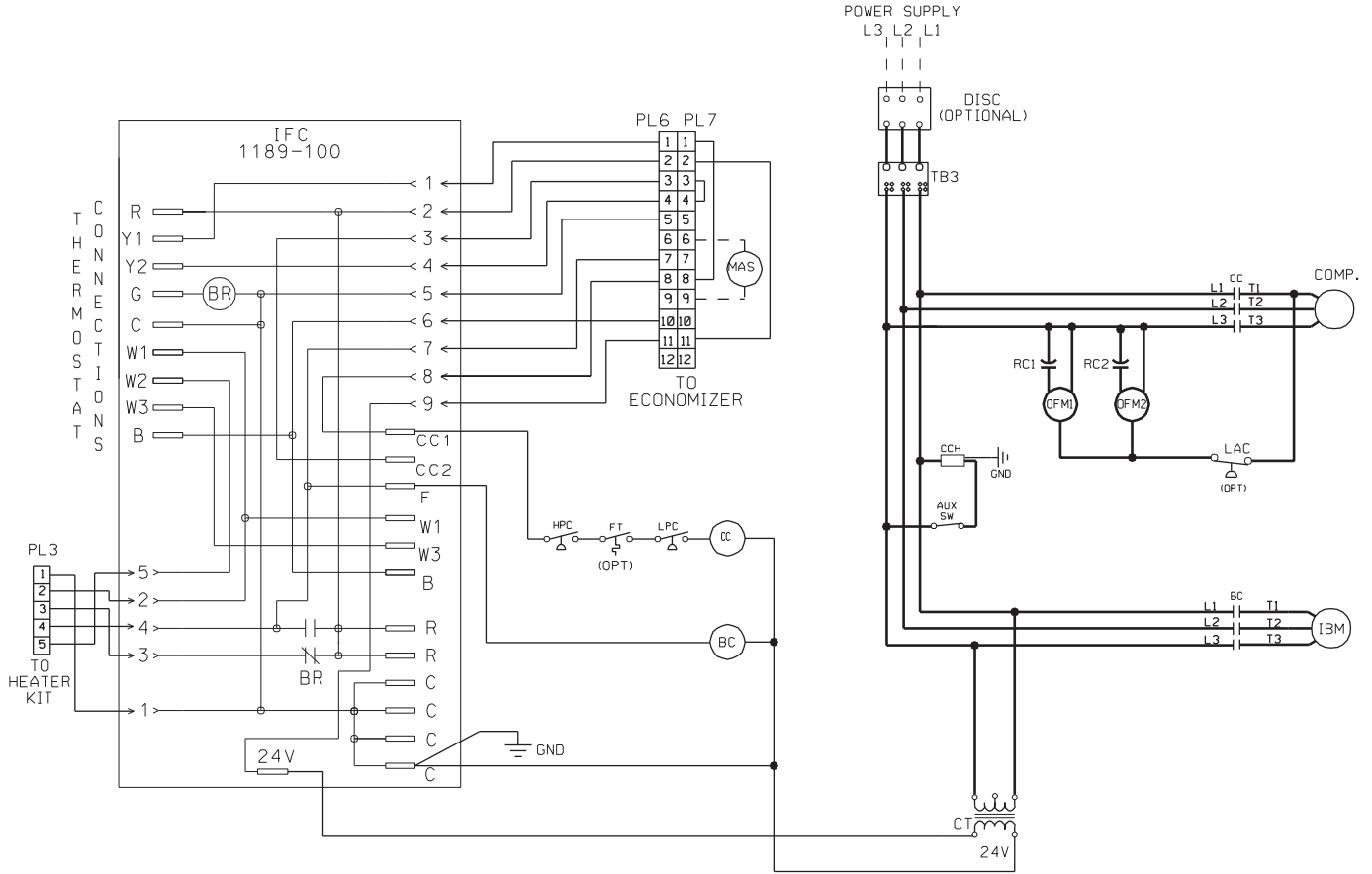
## WIRING DIAGRAM

### 072/085

208-230/460/575V 3 PH, 60 HZ.

ROOFTOP

DR. BY	APP. BY	DATE	DWG. NO.	REV
MGR		5-19-08	90-102892-02	02



DWG. NO. 90-102893-02  
 REV. 00

**COMPONENT CODE**

AUX SW	AUXILIARY SWITCH	MAS	MIXED AIR SENSOR
BC	BLOWER MOTOR CONTACTOR	OFM	OUTDOOR FAN MOTOR
BR	BLOWER RELAY	OPT	OPTIONAL
CC	COMPRESSOR CONTACTOR	PL	PLUG
CCH	CRANKCASE HEATER	RC	RUN CAPACITOR
COMP	COMPRESSOR	TB	TERMINAL BLOCK
CT	CONTROL TRANSFORMER		
FT	FREEZE STAT		
GL	GROUND LUG		
GND	GROUND		
HPC	HIGH PRESSURE CONTROL		
IBM	INDOOR BLOWER MOTOR		
IFC	INTEGRATED FURNACE CONTROL		
LAC	LOW AMBIENT CONTROL		
LPC	LOW PRESSURE CONTROL		

**WIRING INFORMATION**

**LINE VOLTAGE**  
 -FACTORY STANDARD —————  
 -FACTORY OPTION - - - - -  
 -FIELD INSTALLED - - - - -

**LOW VOLTAGE**  
 -FACTORY STANDARD —————  
 -FACTORY OPTION - - - - -  
 -FIELD INSTALLED - - - - -

**REPLACEMENT WIRE**  
 -MUST BE THE SAME SIZE AND TYPE OF INSULATION AS ORIGINAL (105° C MIN.)

**WARNING**  
 -CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C., AND LOCAL CODES AS APPLICABLE.

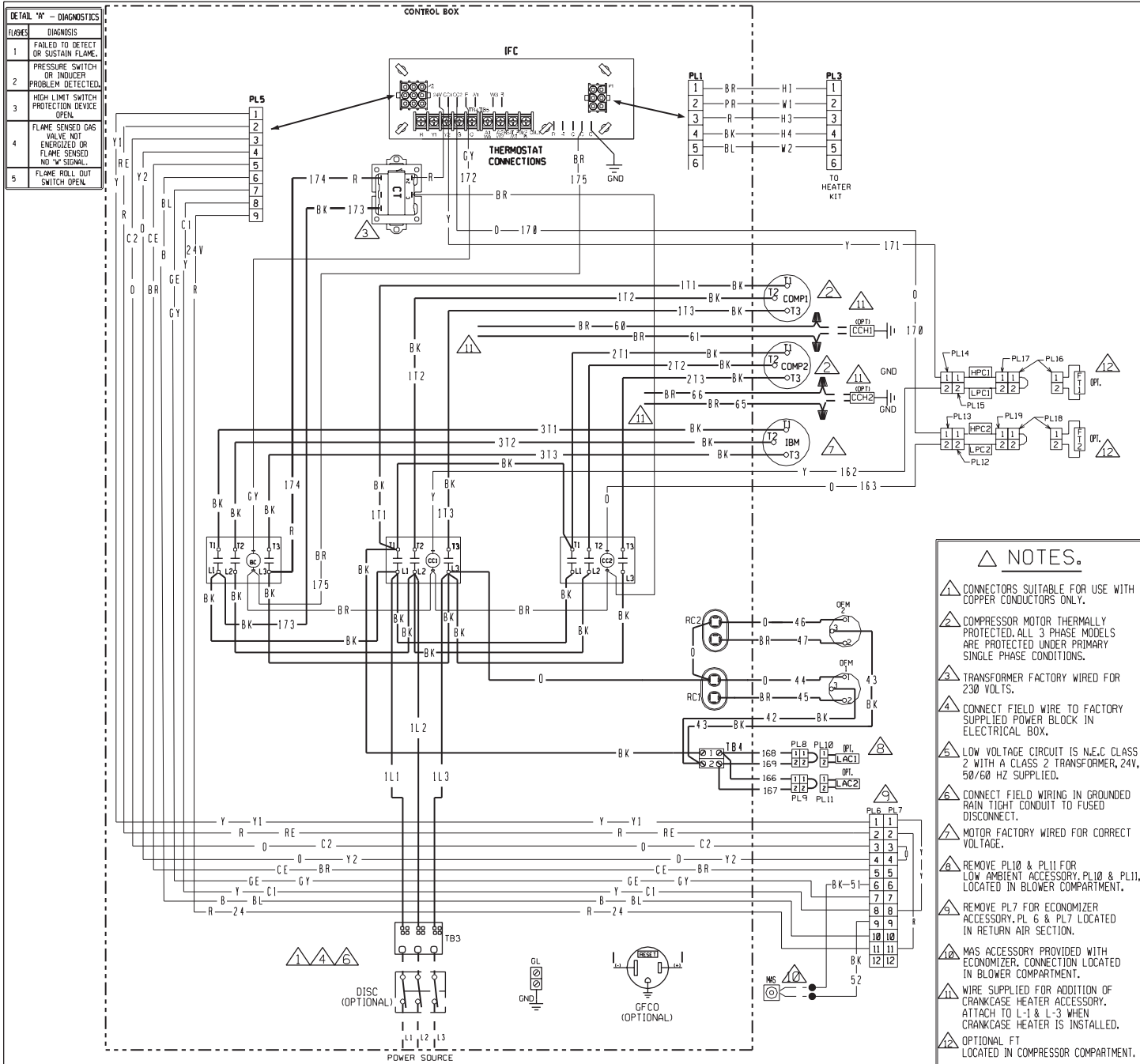
**WIRE COLOR CODE**

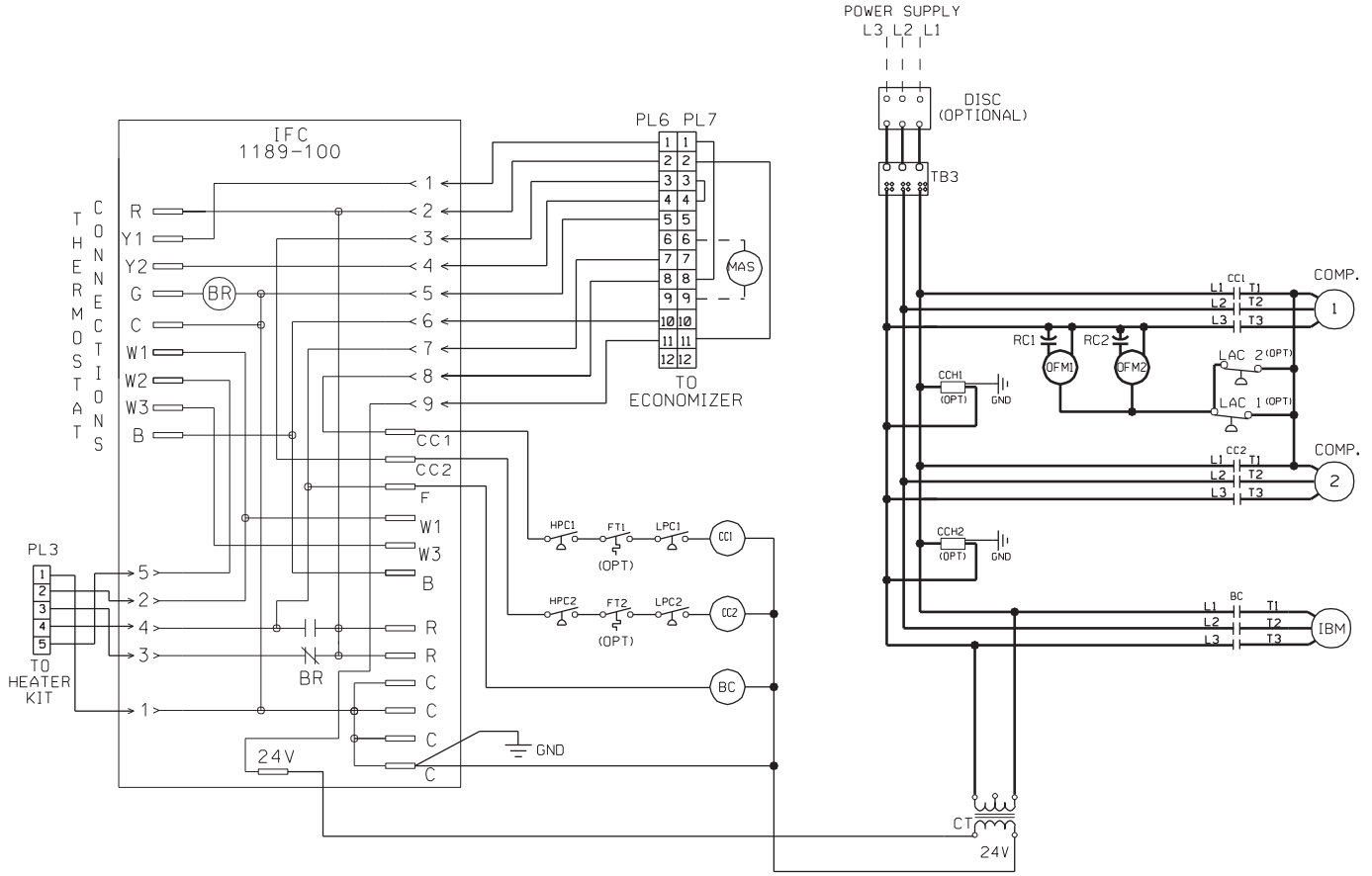
BK	BLACK	O	ORANGE
BR	BROWN	PR	PURPLE
BL	BLUE	R	RED
G	GREEN	W	WHITE
GY	GRAY	Y	YELLOW

**WIRING SCHEMATIC**  
**072/085**  
 PACKAGED A/C  
 208-230, 3PH, 60HZ./460, 3PH, 60HZ.  
 575V, 3PH, 60HZ.

DR. BY MGR	APP. BY	DATE 5-22-08	DWG. NO. 90-102893-02	REV 00
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DWG. NO. 90-102893-01  
REV. 00

COMPONENT CODE

BC	BLOWER MOTOR CONTACTOR	MAS	MIXED AIR SENSOR
BR	BLOWER RELAY	OFM	OUTDOOR FAN MOTOR
CC	COMPRESSOR CONTACTOR	OPT	OPTIONAL
CCH	CRANKCASE HEATER	PL	PLUG
COMP	COMPRESSOR	RC	RUN CAPACITOR
CT	CONTROL TRANSFORMER	TB	TERMINAL BLOCK
FT	FREEZE STAT		
GL	GROUND LUG		
GND	GROUND		
HPC	HIGH PRESSURE CONTROL		
IBM	INDOOR BLOWER MOTOR		
IFC	INTEGRATED FURNACE CONTROL		
LAC	LOW AMBIENT CONTROL		
LPC	LOW PRESSURE CONTROL		

WIRING INFORMATION

LINE VOLTAGE  
 -FACTORY STANDARD ————  
 -FACTORY OPTION - - - - -  
 -FIELD INSTALLED - . . . . .

LOW VOLTAGE  
 -FACTORY STANDARD ————  
 -FACTORY OPTION - - - - -  
 -FIELD INSTALLED - . . . . .

REPLACEMENT WIRE  
 -MUST BE THE SAME SIZE AND TYPE OF INSULATION AS ORIGINAL (105° C MIN.)

WARNING  
 -CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C., AND LOCAL CODES AS APPLICABLE.

WIRE COLOR CODE

BK	BLACK	O	ORANGE
BR	BROWN	PR	PURPLE
BL	BLUE	R	RED
G	GREEN	W	WHITE
GY	GRAY	Y	YELLOW

**WIRING SCHEMATIC**  
**090/102/120/150**  
 PACKAGED A/C  
 208-230, 3PH, 60HZ./460, 3PH, 60HZ.  
 575V, 3PH, 60HZ.

DR. BY MGR	APP. BY	DATE 5-22-08	DWG. NO. 90-102893-01	REV 00
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# XXII. CHARGING CHARTS

## PCG SYSTEM CHARGE CHARTS

FIGURE 16

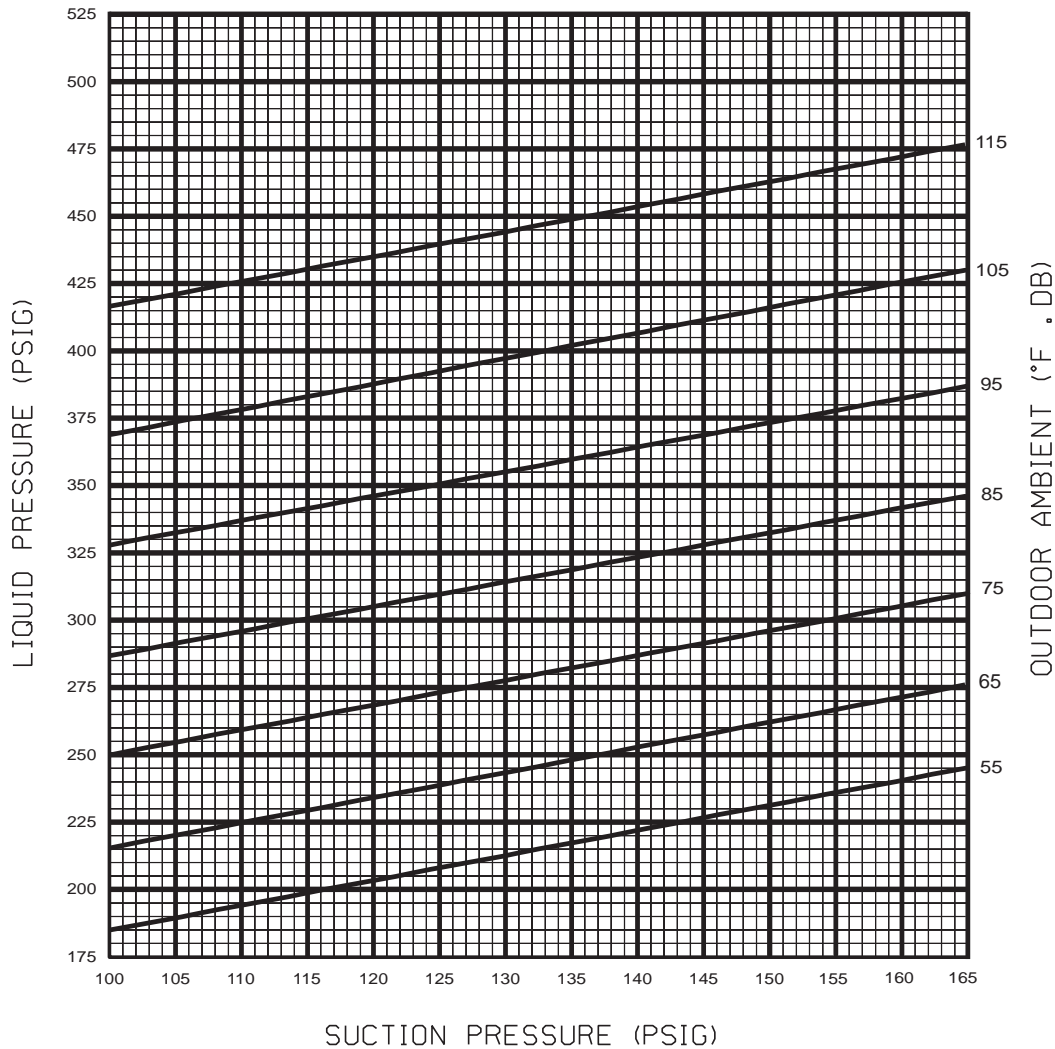
### SYSTEM CHARGE CHART - REFRIGERANT 410A -072, CIRCUIT 1

**CAUTION:**

1. RETURN AIR TEMPERATURE MUST BE WITHIN COMFORT CONDITIONS BEFORE FINAL REFRIGERANT CHECK!

**INSTRUCTIONS:**

1. MEASURE PRESSURE AT COMPRESSOR SUCTION AND LIQUID.
2. MEASURE OUTDOOR AMBIENT TO UNIT.
3. PLACE (X) ON CHART WHERE SUCTION AND LIQUID INTERSECT.
4. IF (X) IS BELOW OUTDOOR AMBIENT LINE, ADD CHARGE AND REPEAT STEPS 1-3.
5. IF (X) IS ABOVE OUTDOOR AMBIENT LINE, RECOVER EXCESS CHARGE AND REPEAT STEPS 1-3.



# PCG SYSTEM CHARGE CHARTS

## FIGURE 17

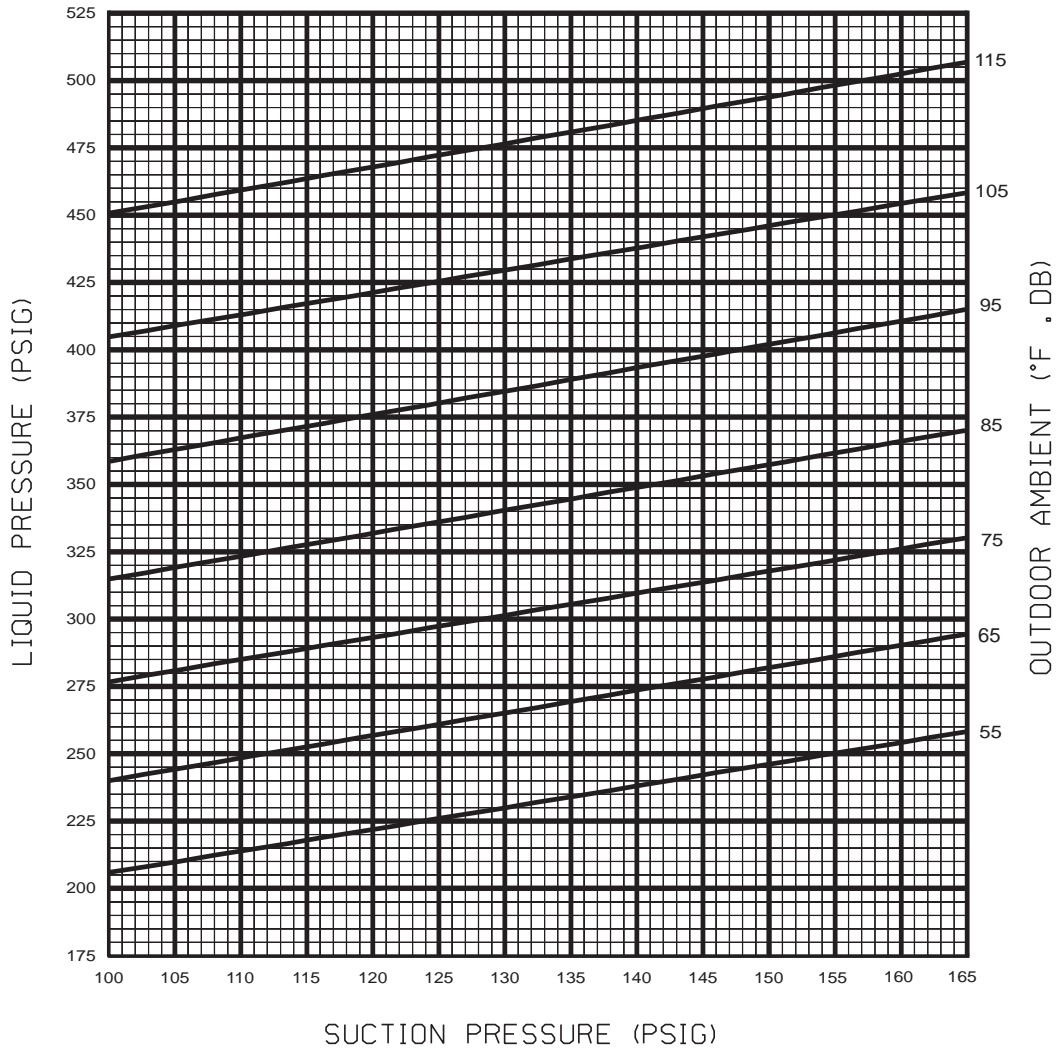
### SYSTEM CHARGE CHART - REFRIGERANT 410A -085, CIRCUIT 1

**CAUTION:**

1. RETURN AIR TEMPERATURE MUST BE WITHIN COMFORT CONDITIONS BEFORE FINAL REFRIGERANT CHECK!

**INSTRUCTIONS:**

1. MEASURE PRESSURE AT COMPRESSOR SUCTION AND LIQUID.
2. MEASURE OUTDOOR AMBIENT TO UNIT.
3. PLACE (X) ON CHART WHERE SUCTION AND LIQUID INTERSECT.
4. IF (X) IS BELOW OUTDOOR AMBIENT LINE, ADD CHARGE AND REPEAT STEPS 1-3.
5. IF (X) IS ABOVE OUTDOOR AMBIENT LINE, RECOVER EXCESS CHARGE AND REPEAT STEPS 1-3.



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# PCG SYSTEM CHARGE CHARTS

## FIGURE 18

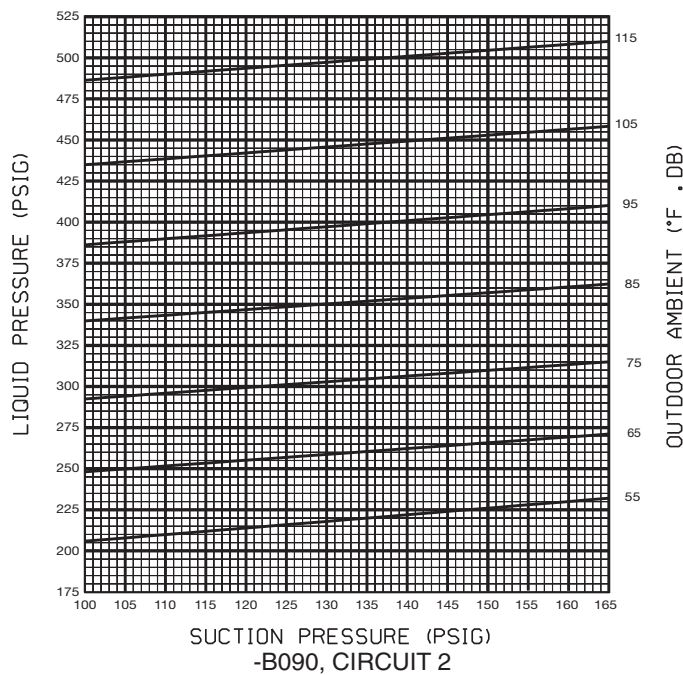
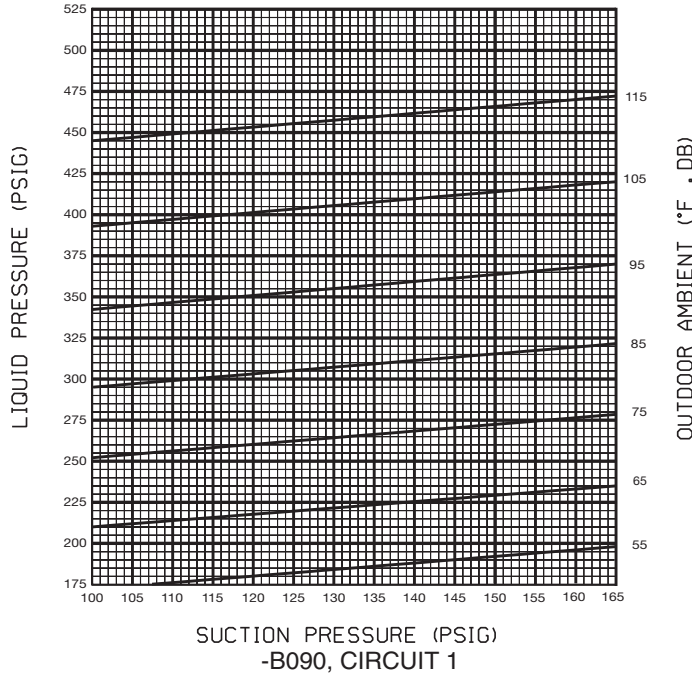
### SYSTEM CHARGE CHART - REFRIGERANT 410A -090, CIRCUITS 1 & 2

**CAUTION:**

1. BOTH COMPRESSORS MUST BE OPERATING BEFORE CHECKING REFRIGERANT CHARGE.
2. RETURN AIR TEMPERATURE MUST BE WITHIN COMFORT CONDITIONS BEFORE FINAL REFRIGERANT CHECK!

**INSTRUCTIONS:**

1. MEASURE PRESSURE AT COMPRESSOR SUCTION AND LIQUID.
2. MEASURE OUTDOOR AMBIENT TO UNIT.
3. PLACE (X) ON CHART WHERE SUCTION AND LIQUID INTERSECT.
4. IF (X) IS BELOW OUTDOOR AMBIENT LINE, ADD CHARGE AND REPEAT STEPS 1-3.
5. IF (X) IS ABOVE OUTDOOR AMBIENT LINE, RECOVER EXCESS CHARGE AND REPEAT STEPS 1-3.



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# PCG SYSTEM CHARGE CHARTS

## FIGURE 19

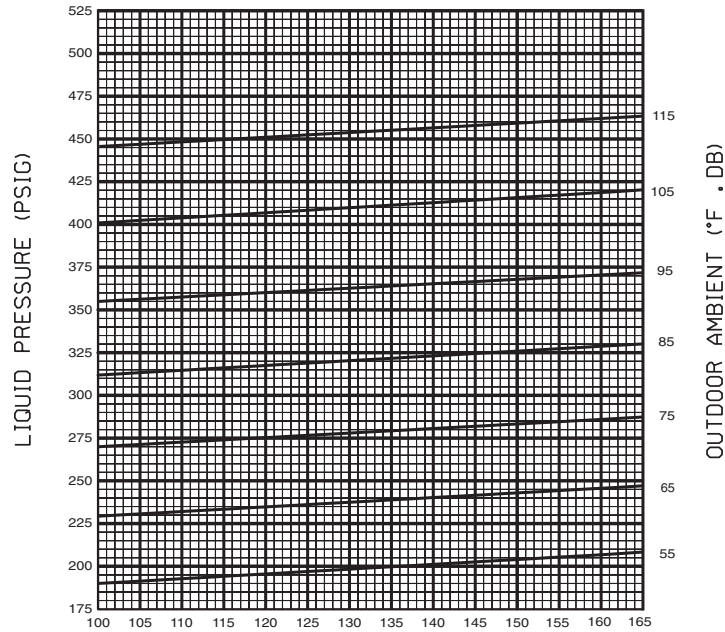
### SYSTEM CHARGE CHART - REFRIGERANT 410A -102, CIRCUITS 1 & 2

**CAUTION:**

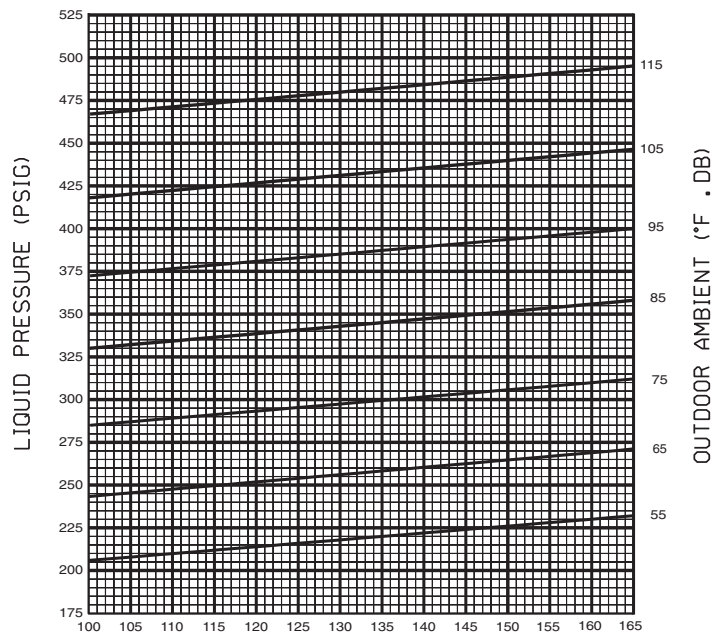
1. BOTH COMPRESSORS MUST BE OPERATING BEFORE CHECKING REFRIGERANT CHARGE.
2. RETURN AIR TEMPERATURE MUST BE WITHIN COMFORT CONDITIONS BEFORE FINAL REFRIGERANT CHECK!

**INSTRUCTIONS:**

1. MEASURE PRESSURE AT COMPRESSOR SUCTION AND LIQUID.
2. MEASURE OUTDOOR AMBIENT TO UNIT.
3. PLACE (X) ON CHART WHERE SUCTION AND LIQUID INTERSECT.
4. IF (X) IS BELOW OUTDOOR AMBIENT LINE, ADD CHARGE AND REPEAT STEPS 1-3.
5. IF (X) IS ABOVE OUTDOOR AMBIENT LINE, RECOVER EXCESS CHARGE AND REPEAT STEPS 1-3.



LIQUID PRESSURE (PSIG)  
SUCTION PRESSURE (PSIG)  
-B102, CIRCUIT 1



LIQUID PRESSURE (PSIG)  
SUCTION PRESSURE (PSIG)  
-B102, CIRCUIT 2

92-102259-09-00

# PCG SYSTEM CHARGE CHARTS

## FIGURE 20

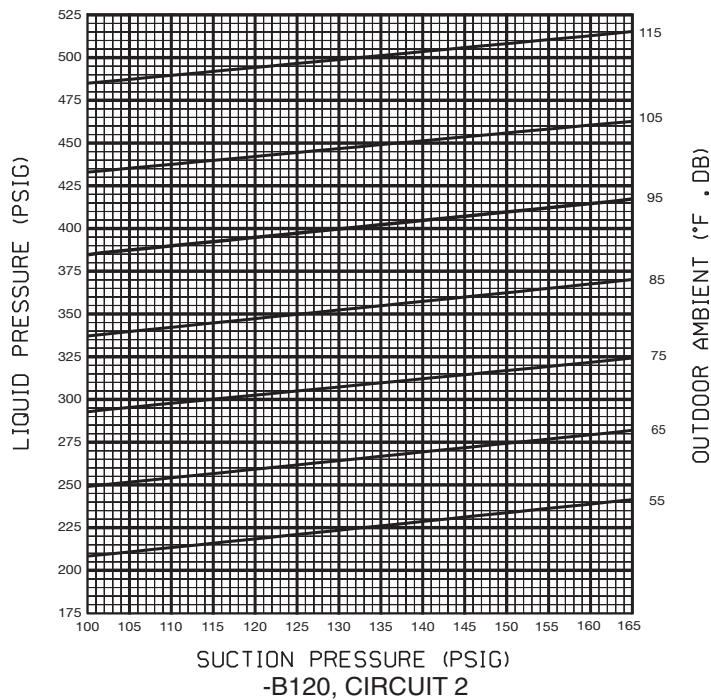
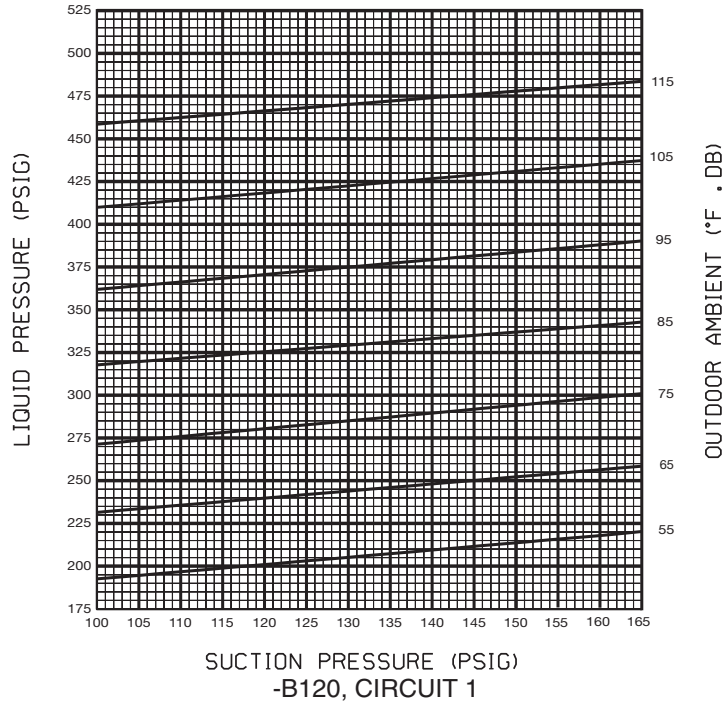
### SYSTEM CHARGE CHART - REFRIGERANT 410A -120, CIRCUITS 1 & 2

**CAUTION:**

1. BOTH COMPRESSORS MUST BE OPERATING BEFORE CHECKING REFRIGERANT CHARGE.
2. RETURN AIR TEMPERATURE MUST BE WITHIN COMFORT CONDITIONS BEFORE FINAL REFRIGERANT CHECK!

**INSTRUCTIONS:**

1. MEASURE PRESSURE AT COMPRESSOR SUCTION AND LIQUID.
2. MEASURE OUTDOOR AMBIENT TO UNIT.
3. PLACE (X) ON CHART WHERE SUCTION AND LIQUID INTERSECT.
4. IF (X) IS BELOW OUTDOOR AMBIENT LINE, ADD CHARGE AND REPEAT STEPS 1-3.
5. IF (X) IS ABOVE OUTDOOR AMBIENT LINE, RECOVER EXCESS CHARGE AND REPEAT STEPS 1-3.



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# PCG SYSTEM CHARGE CHARTS

## FIGURE 21

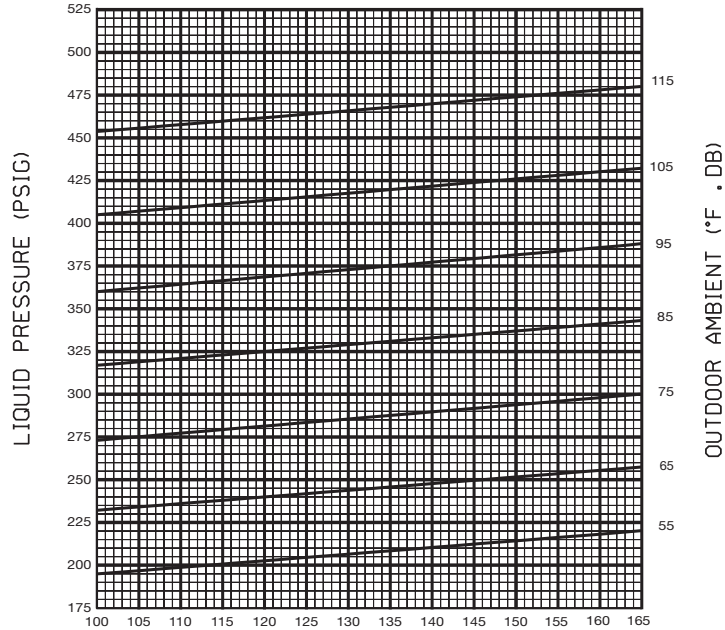
### SYSTEM CHARGE CHART - REFRIGERANT 410A -150, CIRCUITS 1 & 2

**CAUTION:**

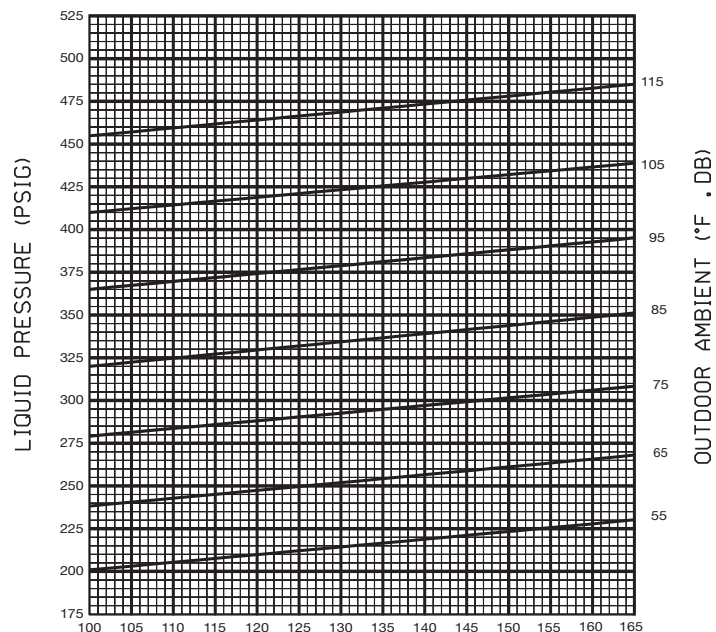
1. BOTH COMPRESSORS MUST BE OPERATING BEFORE CHECKING REFRIGERANT CHARGE.
2. RETURN AIR TEMPERATURE MUST BE WITHIN COMFORT CONDITIONS BEFORE FINAL REFRIGERANT CHECK!

**INSTRUCTIONS:**

1. MEASURE PRESSURE AT COMPRESSOR SUCTION AND LIQUID.
2. MEASURE OUTDOOR AMBIENT TO UNIT.
3. PLACE (X) ON CHART WHERE SUCTION AND LIQUID INTERSECT.
4. IF (X) IS BELOW OUTDOOR AMBIENT LINE, ADD CHARGE AND REPEAT STEPS 1-3.
5. IF (X) IS ABOVE OUTDOOR AMBIENT LINE, RECOVER EXCESS CHARGE AND REPEAT STEPS 1-3.



SUCTION PRESSURE (PSIG)  
-B150, CIRCUIT 1



SUCTION PRESSURE (PSIG)  
-B150, CIRCUIT 2

92-102259-11-00





